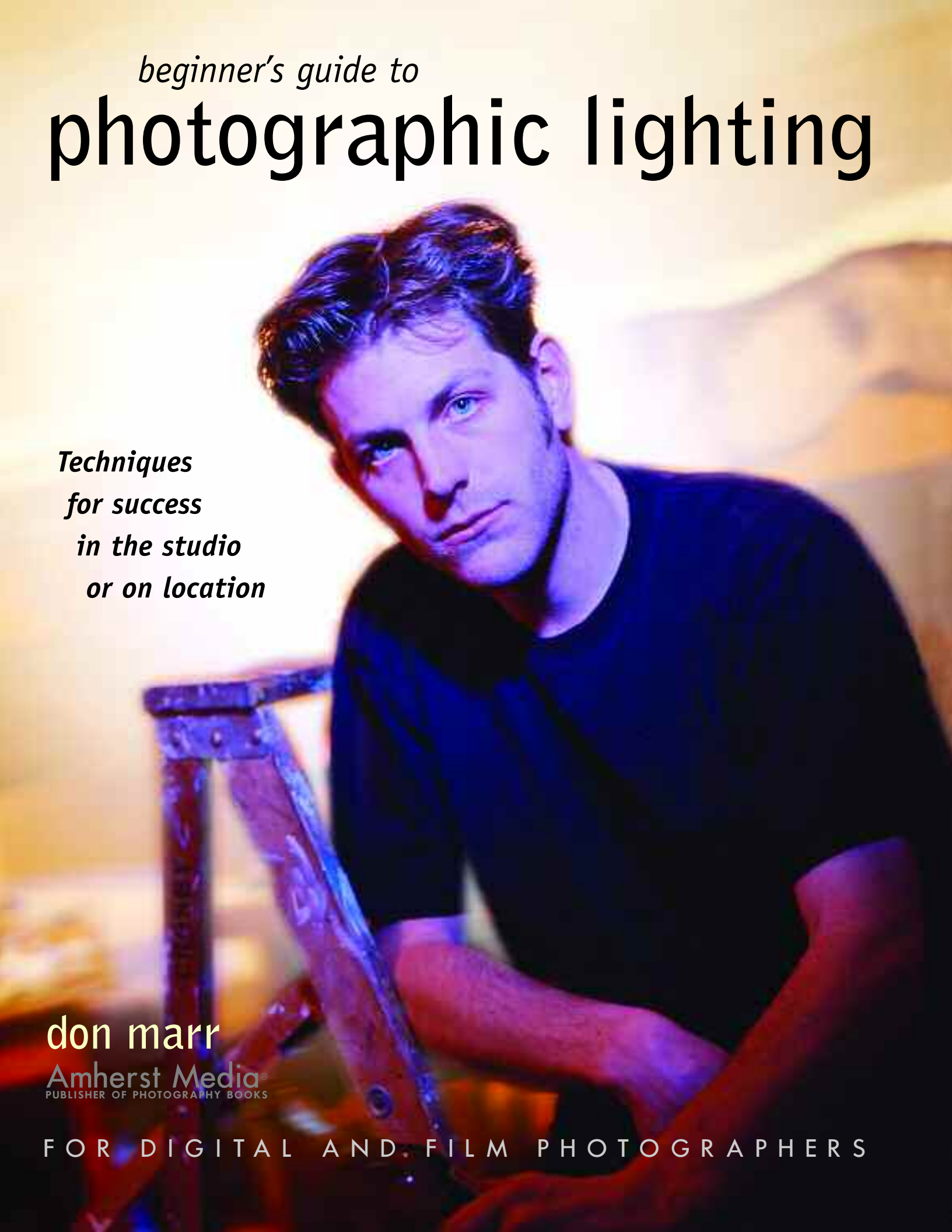
VISIT…

beginner's guide to

photographic lighting



Techniques for success in the studio or on location

don marr

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FOR DIGITAL AND FILM PHOTOGRAPHERS

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introduction

I remember my first experiments with lights. I was working at a photo lab that had a studio in the back. The owner of the lab was a photographer as well, and was nice enough to let me try my hand at the studio lights in the evening after he had left for the day. I was so worried about breaking the expensive equipment that I was actually afraid to turn on the power to the strobes. The light meter also intimidated me—it seemed like something out of *Star Trek*. I was baffled.

Eventually, I worked up some nerve, and by the time my friend showed up to model for me, I had managed to get a single reading from the meter; it said f-11. That was the only reading I got from the meter that night. I tried pressing the buttons again in a variety of combinations but all I ever got was an error message.

I tried pressing the buttons again in a variety of combinations but all I ever got was an error message.

Trying to look like I knew what I was doing, I continued with the shoot, spinning the aperture dial on my Pentax 50mm lens throughout the night. One of these exposures will be good, I thought. My friend knew a little about photography herself and asked why I was bracketing so much. That was it; I had been exposed as a fraud. I mumbled something about the light meter not working. From that point on, I set the aperture to f-11 and left it there the rest of the night.

The following day I watched the prints come out of the machine with some other workers from the photo lab. I was embarrassed as one ugly print after the other kept coming out—grainy, underexposed prints followed by wishy-washy, overexposed ones. Then suddenly they started looking good, the result of my conversion to f-11. That light meter must actually work, I thought. At that point, the owner of the lab walked by to look at the prints as they exited the machine. "Nice work," he said.

That was it—I was changed forever. Lighting was cool! That light-meter gizmo was cool! Needless to say, I continued to experiment in the studio at night as much as possible. That was about fourteen years ago, and I still think lighting is cool. There are many elements to creating a great image, but my first consideration is always lighting. It's amazing to see how it can transform the everyday into something spectacular. Through photography and lighting, I have grown to notice and admire the light that surrounds us daily, be it natural or artificial. I have to admit, though, that I *am* a lighting nerd. After a recent shoe-catalog shoot, the manufacturer asked if I would be interested in any of the shoes as a gift. I honestly could not remember any of the styles because I was only paying attention to the lighting and how it worked with the subjects. The only words I thought of during the shoot were "black, shiny, leather, white, shape, curve, texture, reflections," etc. I didn't think, "Hey, these look comfortable!" or "I wonder if those come in black?" I think you can probably see that I'm a little obsessed about lighting.

FUN AND EASY

In this book, I will show you how fun and easy lighting can be. There's no reason to be intimidated like I was that first night in the studio. We will start slowly and then gradually move on to advanced techniques. Knowing the rules of lighting is important, mainly so that, as you get better, you can break them and create some unique work. It is important to experiment and make mistakes but I hope to point you in the direction of making productive mistakes—knowing what went wrong and correcting it, or using the mistake as a starting point for something new.

Never again will you look at your film or digital monitor and wonder what happened with the lighting.

Never again will you look at your film or digital monitor and wonder what happened with the lighting. If something unusual did

occur, either by fault or design, you will be able to identify what happened. I'm particularly drawn to unusual lighting techniques and exposures, and we will experiment with these to develop some creative shots.

ABOUT THIS BOOK

The primary focus of my commercial work is people and product photography. I do interior and architectural photography as well. The examples in this book will be from my area of expertise, but the techniques can be applied to any subject matter. In some instances, schematic drawings of lighting setups will accompany the explanations. In many of the chapters, I have suggested practice ideas for the material discussed. You can use these sections, called "Putting it to Use," as an assignment list or as a jumping-off point for your own endeavors. I will also suggest setting up some shots in intentionally ugly settings so that you can see how lighting can save you from some messy situations that are unfortunately common.

The examples will be from my area of expertise, but the techniques can be applied to any subject matter.

WHAT YOU NEED TO KNOW

This book assumes a basic understanding of photography. You should be comfortable with aperture, shutter speed, depth of field, lenses, and film/digital capture. Whether you aspire to become a professional or just shoot more professionally, this book will push you to a higher level. Feel free to shoot whatever format and film you like. If you have a camera with Polaroid capability or a digital camera with a monitor, I highly recommend using them. They are great tools for getting instant feedback on your lighting. Speaking of digital cameras, we will spend time looking at how this new technology can improve our photographs.

WHAT EQUIPMENT YOU NEED

As far as lighting equipment is concerned, you will need at least one strobe head and a light meter in order to practice what is presented in this book. Two strobe heads would be better. If you are just starting with lighting and can't afford strobe equipment, read the book anyway. The concepts discussed will open your eyes to the nature of light all around us.

Let's get started.

CHAPTER ONE

quality of light

I'm not talking about boiled eggs here. The terms "hard" and "soft" to describe the quality of light will come up again and again throughout this book and for the rest of your lighting career, so it is best to have a clear understanding of what they mean.

SOFT AND HARD LIGHT

Soft light is the kind of light we see on an overcast day. There are few if any shadows, and colors are muted. The world takes on a low-contrast, pastel, or soft look. Hard light, on the other hand, is the type of light we see on a bright, sunny day. It is high contrast with deep, dark shadows and bright colors. The world seems made up of sharply defined edges with this kind of light.

Together, these terms are ways of describing the quality of the light. Therefore, when we ask, "What was the quality of the light in that photo?" we are asking if it was soft or hard light. In some cases, there may even be a combination of soft and hard light.

Wherever you are right now, look at your surroundings and see if they are lit by soft or hard light. Now find a photo nearby and see if its subject is lit by soft or hard light. Did you see clearly defined shadows? No shadows at all? Something in between? I would like you to start paying attention to the qualities of light that surround

Wherever you are right now, look at your surroundings and see if they are lit by soft or hard light.

you every day. Also, notice when you find something that, in your opinion, has "nice light" on it. Why does that subject look best in that particular quality of light? Try to imagine the same subject in a different quality of light. Would it look as good?

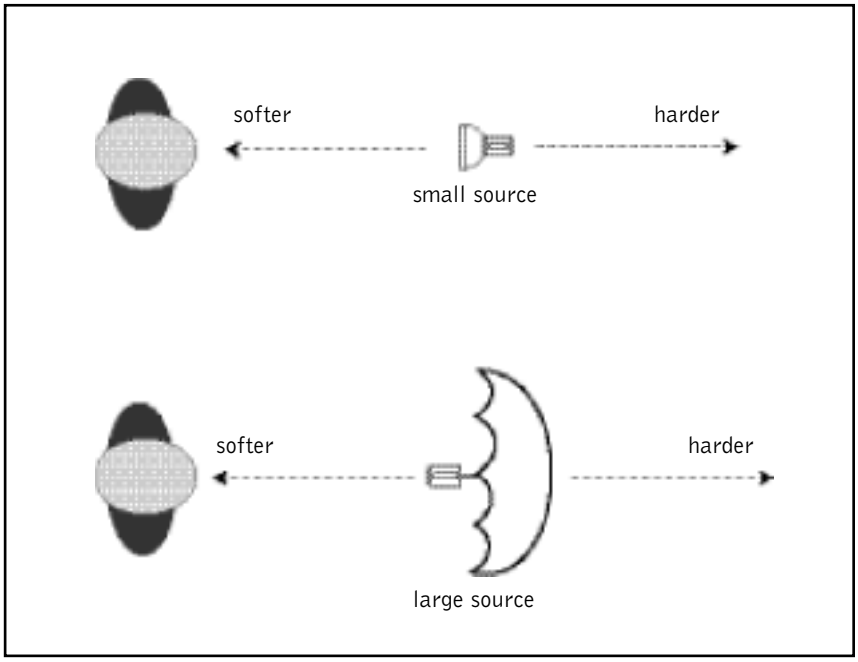
Here you can instantly see the difference between hard light (left) and soft light (right). We'll return to these images in chapter 3 and learn how simply they were created.

We as photographers probably have a greater instinct about light than most people, but it is important to know *why* you like a particular quality of light, not just that you like it. An awareness of quality of light will help us make better decisions in the studio, determining what is the best quality of light to use for a particular subject.

THE SIZE OF THE LIGHT SOURCE

Now that we know the qualities of a soft or hard light, we need to ask what it is that makes a light soft or hard. The answer is the size of the light source in relation to the subject. A light source that is

large in relation to the subject will be a soft light. On the other hand, a light source that is small in relation to the subject will be a hard light.



A source that is small in relation to the subject produces a hard lighting effect. A source that is large in relation to the subject produces a soft lighting effect. In both cases, you can make the light softer by moving the source closer to the subject, or harder by moving it farther away.

For example, if you took a portrait of someone in direct sunlight, the sun is the light source, obviously. Even though it's very bright, because it is so far away, the sun's effective size is very small—on the order of a light the size of the circle made by your thumb and index finger placed at arm's length. I know the sun is huge, but here on Earth I can block it out with my hand.

On the other hand, if you take a portrait of someone on an overcast day, the entire overcast sky becomes one huge light source. This is a soft light, since the size of the light source is very big in relation to the subject. With the entire sky as the light, I wouldn't be able to block the light source with my hand.

With these examples, don't think about their brightness. Think about their size.

FACING PAGE—This photo was taken at sunrise. The sun came from the right of the camera. Initially, the direct sun was very bright and it was difficult for the model to keep her eyes open. A 3x3-foot diffusion panel was set up in front of the model to diffuse the direct sun. The panel, in effect, made the small light source of the sun into a 3x3-foot soft light. This was easier on the model's eyes and produced a more flattering light.

THE SOURCE OF LIGHT

Now that we know the qualities of soft and hard light and how they are created, we need to look at the original source of these lights. Natural light is light created by the sun. This could be direct sunlight, light from a window, or open shade (a shady area in close proximity to a sunlit area). Artificial light is any light not created by

the sun. This includes household lights, flash, street lamps, flashlights, televisions, Christmas-tree lights, headlights, lighters, and countless other sources. Any of these sources could be used to light a subject.

Available light is the light from all the light sources that are available to light a subject without intervention from the photographer. This could be a combination of natural and artificial light. For example, you may take a portrait of someone who is lit by natural light from a window, while artificial light from household lamps lights the background. Available light is also called ambient light.

These terms may seem obvious, but they will become prevalent in our language as we begin to understand lighting more. The advantage of learning good lighting skills is that you can create the kind of lighting you want, no matter what the situation. You can create a natural-looking scene in an artificially lit environment, or vice-versa.

FACING PAGE—Try some unusual light sources. In this photo, Christmas lights were used to illuminate the model. This was a long exposure—about 1/4 second with the camera on a tripod. The slight blur is from the model moving. Don't let imperfect lighting conditions stop you from capturing an interesting ambiance.

TERMS TO KNOW

artificial light—Any light that is not from the sun (lamps, strobes, candles, etc.).

available light—Light that exists in a setting without being supplemented by the photographer.

hard light—Light from a source that is small in relation to the subject. Creates dark shadows and bright colors.

natural light—Light from the sun (daylight, sun through a window, etc.).

soft light—Light from a source that is large in relation to the subject. Creates light shadows (if any) and muted colors.

quality of light—Whether the light is hard or soft.

equipment

The most important tool in understanding photographic lighting is the light meter. All light meters perform the same basic functions.

TYPES OF LIGHT METERS

Handheld light meters read incident light, meaning they measure light falling on a subject, whereas in-camera meters found on 35mm cameras are reflective meters, meaning they measure the amount of light reflected from the scene.

The least expensive and most basic light meters are usually the best choice, since they don't have a lot of unnecessary features. Make sure, however, that you get one that measures flash; some of the very inexpensive meters only measure ambient light. Meters that are more expensive will have more functions of course, such as averaging and memory, but these are functions the photographer should probably be performing in his or her head. (Buying an expensive meter with a lot of bells and whistles leads to distraction and is akin to buying a calculator without knowing how to do basic math yourself.)

The least expensive and most basic light meters are usually the best choice, since they don't have a lot of unnecessary features.

More expensive units may also have built-in reflective spot meters, which measure small areas of reflected light bouncing off the

This is the Minolta AutoMeter IVF. It measures both incident light and flash.

subject. Spot meters are fine for measuring light for landscape photography or other hard-to-reach metered areas, but it is more accurate to measure the light falling on the subject with an incident light meter.

Take the light meter out to your subject and place it as close to your subject as possible

USING AN INCIDENT METER

Where to Meter. When measuring light with an incident light meter, take the light meter out to your subject and place it as close to your subject as possible, with the dome facing the camera, not toward the light. If you are photographing a person, don't be afraid

This portrait was taken with a digital camera. The subject was positioned next to a window and the meter reading was taken off the side of his face.

to place the light meter right against their face with the dome pointing toward the camera. Don't be lazy and just place the meter *near* your subject. There could be a huge difference in the amount of light hitting the subject and the light hitting the area two feet away.

Place the light meter right against their face with the dome pointing toward the camera.

What to Meter. Whether you are shooting film or digital will determine the area of the subject on which you should place the meter. If you are shooting transparency film or digital, you should take a reading at the brightest area of the subject that is facing the

camera (highlight). Transparency film and digital tend to overexpose easily, so that's why the highlight should be metered. With digital cameras, use the histogram feature on the monitor to make sure that no important details are blown out to white. If you are shooting negative film, take two readings: one reading for the highlight and a second for a shadow area. The average of these two readings will be an accurate exposure. Negative film underexposes easily, so it is important to include a shadow area in your light reading.

METERING MODES

The light meter has three modes to measure light: ambient, cord, and non-cord. As you read through this section, keep in mind that "flash" and "strobe" are synonymous terms. Flash usually refers to smaller, on-camera units, and strobe usually refers to the bigger studio units, but the terms are interchangeable.

Ambient Mode. The ambient mode measures all ambient or available light. You will remember from the last chapter that available light means all light sources, excluding flash and strobe, available to light a subject. A light reading taken in the ambient mode will give an appropriate shutter speed and aperture setting to make a good exposure with available light.

Available light means all light sources, excluding flash and strobe, available to light a subject.

Cord Mode. The cord mode will measure flash or strobe when a sync cord is plugged into the light meter, providing the correct aperture for the exposure.

Interestingly, you will notice that the shutter speed is almost irrelevant when measuring in cord or non-cord mode. You will probably get the same reading whether the meter is set at $\frac{1}{500}$ second or $\frac{1}{60}$ second. In cord or non-cord mode, the meter only reads the very fast pop of the strobe (approximately $\frac{1}{3000}$ second). You will only start to see a difference in readings when the shutter speed on the light meter is set to a much slower speed. At slower shutter speeds, the meter reads both the strobe and the ambient light. (We will learn more about combining strobe and ambient light in a later chapter.)

Check your camera's manual for the fastest sync speed usable with flash or strobe. If your camera's shutter speed is set too fast, the frame will not be completely exposed, and you will see half- or quarter-exposed frames.

Non-Cord Mode. When the sync cord is not long enough to reach the area of the subject that needs to be measured, the meter should be used in non-cord mode. In the non-cord mode, the meter functions the same as in the cord mode, except that the sync cord is not attached to the meter. The measuring button of the meter is pressed, and then you have approximately ten seconds to pop the strobe or flash by hand.

WHAT THE READINGS MEAN

The ultimate goal of using and understanding the light meter goes beyond just knowing what the buttons do; it's knowing what the readings are telling you. For a portrait, you will begin to see what a one-stop difference between the sides of someone's face looks like. For an interior shot, you will know how much window light is extending into the room. For a product shot, you will see the importance of giving darker parts of the product more light. All of these scenarios can be easily understood and controlled by understanding the f-stop readings the meter is giving you.

The best exposure is the one you like the most, not necessarily the one that has the most tonal range.

EXPOSURE AND BRACKETING

This next sentence may surprise you: "Good exposure" is a relative term. This probably contradicts everything you've ever heard about film and exposure. We, as photographers, have been trained to admire the masters—like Ansel Adams, who used exposure and developing techniques to pull every possible tone out his film and printing paper.

Nevertheless, at the end of a photo shoot, the best exposure is the one you like the most, and this is not necessarily the one that has the most tonal range. It may be an exposure that's four stops overexposed or one that's three stops underexposed, but as long as it captured the feeling you were trying to express in that shot, then it is a correct exposure.

Creative Exposure. Because there isn't just *one* correct exposure, we can use the limitations of film/digital to our advantage to render the subject as we want to see it. We can underexpose to make a shadow area go completely black, or overexpose to make a highlight area go completely white. If there is a black area in your shot already, underexposing the shot will not make the black go any

FACING PAGE (TOP)—These three shots show a wide bracket. Use your personal preference to decide which exposure works best for a particular subject. This exposure is what the light meter considered the "correct" exposure, $^1/_{125}$ second at f-5.6.

FACING PAGE (BOTTOM LEFT)—This exposure was $^1/_{125}$ at f-11.5. It is $2^1/_2$ stops darker than the previous shot. The color is richer and it is darker overall. However, the shadow area from the previous shot has not gone any darker in this shot. It was already black.

FACING PAGE (BOTTOM RIGHT)—This exposure was $^1/_{125}$ second at f-2.8. It is two stops brighter than the first shot. The color is more pastel, and it is lighter overall. In this instance, the highlight reflections are not any whiter than they were in the first shot. They were already white.

SAFETY IN THE STUDIO

Studio strobes carry a lot of electrical current. An important rule of thumb when working with studio strobes is to turn off the power before connecting or disconnecting the cords that lead to the strobe heads. If you were to unplug a strobe head while the power was still on, the charge that has built up in the power pack can arc as you pull out the cord and seek to ground itself in your body. Not good! There are some newer studio strobe units that are arc-proof, but rather than learning the specs on all the latest units, it is safest to get in the habit of turning off the power before connecting or disconnecting. It only takes a few seconds. Fortunately, it's not necessary to turn off the power when connecting or disconnecting the sync cord, since the sync cord carries very little current.

blacker, so we can also use underexposure to make the middle and highlight tones go darker. Equally, if there is a white area in your shot initially, overexposing the shot will not make the white go any whiter, so you can use overexposure to make the dark and middle tones go lighter. We can intentionally underexpose so much that only a highlight is left visible, like the catchlight in someone's eyes. On the other hand, we could decide to overexpose a shot of someone's face so that only the color of their eyes and hair is visible, with the rest of their face going completely white.

Try more extreme brackets to see which exposure suits the subject and your taste.

Bracketing. These possibilities are what make it important to bracket your exposures. Bracketing means shooting some frames over or under the "correct" exposure. You will find that some subjects will look better overexposed, while some will look better underexposed; and in most situations, a bracket of a half or one stop will be enough to produce significant differences. Nevertheless, please try more extreme brackets to see which exposure suits the subject and your taste.

LIGHT STANDS

Quality. Good light stands can be your best friends as a photographer. Considering that they support an expensive investment (your lights), it makes sense to purchase high-quality light stands. You will thank yourself in the years to come for investing in quality, since no other piece of equipment gets set up, torn down, folded, unfolded,

FACING PAGE—The light source was a single Octabank light situated behind the photographer. Soft, even light lit the model from around the entire camera.

and just generally abused like a light stand. Buy the best you can afford.

Setting Up. When setting up the stand, make sure that the legs are spread to their widest point. Place one of the legs directly under the direction the light is pointing. This will prevent the stand from tipping over when heavier modifiers like large softboxes are used with the lights. You should also use a sandbag to secure the base of the stand if the light seems top-heavy or if you are working in unstable conditions.

FACING PAGE—A grid spot was attached to a strobe head and aimed at the model's face.

LIGHT MODIFIERS

Light modifiers are the attachments used with lights that control the direction, focus, and quality of light. Manufacturers are creating new light modifiers all the time. Even though it would be great to buy all of the latest gear, a good photographer can do a lot with just a few basic modifiers. As you know, the light quality of the light is related to its size—and manufacturers are using this principle when they invent new ways to make light soft or hard, narrow or wide. The four most commonly used modifiers are the open reflector, the softbox, the umbrella, and the grid spot.

A Speedotron strobe head mounted with (from left to right): an open reflector with a 40-degree grid attached; a medium Chimera softbox; and a 45-inch Photoflex white umbrella.

Open Reflector. The open reflector is the basic dish that comes with a strobe head. It has a silver interior and controls the direction of the light by forcing the entire light forward. Without it, the light would go everywhere.

Softbox. The softbox acts as a light diffuser, creating a bigger, softer quality of light. Softboxes come in a variety of sizes. They also have different interiors. Some have white interiors, which create a softer light, while others have silver interiors, which produce a harder light. Some softboxes have a removable second layer of diffusion material inside for additional diffusion. Softboxes also have either a flat face or baffles, which have the effect of either spreading the light out or focusing it more forward.

Some softboxes have a removable second layer of diffusion material inside for additional diffusion.

Umbrella. The umbrella is a soft light source as well. With the umbrella, the strobe is pointed away from the subject and bounced

TERMS TO KNOW

ambient mode—A light meter mode that measures all ambient or available light.

bracketing—Shooting some frames over or under the "correct" exposure.

cord mode—Measures flash or strobe when a sync cord is plugged into the light meter, providing the correct aperture for the exposure.

flash—Lighting unit that produces a short burst of light. Also called a strobe.

grid spot—Honeycomb-shaped metal panel that attaches to the open reflector and helps to focus the light into a narrow beam.

incident meter—Measures the light falling on a subject.

non-cord mode—Same as in the cord mode, except that the sync cord is not attached to the meter.

open reflector—Basic dish with a silver interior that controls the direction of the light by forcing the entire light forward.

reflective meter—Measures the light reflected by a subject.

softbox—Light modifier that produces soft lighting by diffusing light through a panel on the front of the box.

spot meter—Measures the light reflected by a tiny area of a subject.

strobe—Lighting unit that produces a short burst of light. Also called a flash.

sync cord—Cable used to link the camera to a light meter or strobe power pack.

sync speed—The maximum shutter speed at which the camera can expose an entire frame of film using flash or strobe lighting.

umbrella—Light modifier that produces soft light by bouncing light out of the umbrella and reflecting it onto the subject.

MODELING LIGHTS

The strobe head contains a second light called a modeling light. This is a continuous light source, usually a 250-watt tungsten halogen. It doesn't "pop" when you take a shot. Instead, it stays on continuously to help you focus and see the quality of the light. Some strobes are designed so that the modeling light turns off temporarily after the "pop" of the strobe, then turns back on when the unit has recycled to full power for the next shot.

into the umbrella where it is reflected back out onto the subject. Umbrellas generally spread the light in a wider area than a softbox. The nicest feature of using an umbrella is that you can change the quality of light from softer to harder by simply moving the strobe head closer to the umbrella. When the strobe is close to the umbrella, the light reflects off a smaller area, thus creating a smaller light source.

There is a new generation of hybrid umbrella/softbox combinations that produce an even, soft light.

There is also a new generation of hybrid umbrella/softbox combinations that produce an even, soft light. These are octagonal-shaped parabolic umbrellas that have a front diffusion panel. The light these units produce is even from side to side, whereas most softboxes are much brighter in the middle.

Grid Spot. The grid spot is a honeycomb-shaped metal panel that attaches to the open reflector and helps to focus the light into a narrow beam, similar to a theater spotlight. It is a hard light source.

We will work with each of these light modifiers as we move along in this book.

one-light setups

A good way to start learning the properties of light and the abilities of the strobe is by setting up a single strobe on a stand. By adjusting the size of the light in relation to the subject, either by diffusing the light or changing the distance of the light to the subject, we can create many different looks.

Putting It to Use:
As a simple exercise, take a portrait of a friend using one strobe with the open reflector. Position your friend in the middle of a room facing toward a white wall. You, as the photographer, should stand with the wall at your back. Then, follow this series:

1. Place the strobe with the open reflector near the wall and facing your friend. After a meter reading, take your first shot. The result will be a contrasty portrait with dark shadows and bright colors, the product of a small light source.
2. Now turn the light to face the wall. The light source will become bigger as it bounces off the wall. Take another meter reading and then shoot. The results will be much

As a simple exercise, take a portrait of a friend using one strobe with the open reflector.

different than the first shot. The light will be softer since the light source is bigger.

3. For the last shot, move the light farther away from the wall but still pointing toward the wall. This will spread the light out even further, resulting in an even softer light.

Try moving the softbox very close, then farther away to create varying degrees of soft or hard light.

You can do this same series with a softbox or umbrella as well. Try moving the softbox very close to your subject and then farther away to create varying degrees of soft or hard light. (*Important note*: Anytime you change the position of the light, the position of the camera, or the position of the subject, you need to take a new meter reading.)

The model was lit with an open reflector on a strobe placed high and to the left. This is a hard light.

The same strobe was turned and bounced into a white wall. The light is softer now because it is bouncing off of the big white wall.

The same light was moved farther away from the wall to make it spread out even wider on the white wall. The result was an even softer light source. The exposure changed, of course, because the light had to travel farther, but the scene was re-metered and exposed correctly.

REMBRANDT, LOOP, AND SHORT LIGHT

One light can be used to create some classic looks. These setups are used everywhere, from magazines to movies. Look for them. However, don't feel as if you have to use these exact setups in your

work. They are just starting points. Feel free to modify these setups to create a look that is suitable for the subject and your taste.

Putting It to Use:

1. *Rembrandt Light*—Have a friend face the camera straight on. Place a strobe, mounted with either a softbox or umbrella, at a 45-degree angle to the side of them. Also, raise the light up to a height so that when it is angled down at your friend, it is approximately at a 45-degree angle and casts the shadow of their nose downward. This is the classic Rembrandt light. You will know you have the light positioned correctly when there is an upside-down triangle of light on the dark side of your friend's face. The little kiss of light on the dark side of their face helps to shape the cheek.

This is Rembrandt light. A small softbox was placed high and to the right of the subject. The eye on the left has a subtle catchlight, and there is an upside-down triangle of light on the darker cheek.

2. *Loop Light*—With your friend in the same position, lower the height of the light and bring it closer to the camera—about 30 degrees to the side of the camera. The shadow of the nose will cast a small "loop." Now more of the face and eyes will be lit, but there will still be some shading on the darker side of the face to define its shape.

This is loop light. A small softbox from the upper left lit the subject. As compared to Rembrandt light, the softbox is now lower and more frontal to the subject, lighting more of the shadow side of his face but retaining shape.

3. *Short Light*—You can use the same strobe for the short-light setup. Place your friend at nearly profile position to the camera. You will want to see the eye that is farthest from the camera, so don't let them turn completely profile. The side of the subject's face that is farthest from the camera is often called the short side, and this setup gets its name because most of the light is hitting the short side of the face. Move the light approximately 90 degrees to the side of your friend. Adjust its position so that light hits the front cheek but not the front ear. The short light gives a very natural yet dramatic looking window-light effect.

This is short light. A softbox was placed to the right and slightly behind the subject. Most of the light falls on the side of the face away from the camera—the short side. The front cheek and eye are lit, but the front ear is in shadow.

These three setups are classics, creating drama and mood—and they work great for most faces. Start looking for these effects and you'll find them everywhere, in magazines, TV, and movies. They will never go out of style and they're all done with one light source.

INVERSE SQUARE LAW

The inverse square law states that as a light source is moved farther away from its subject, its intensity drops by the square of its inverse.

For example, imagine you lit a still life with a candle placed three feet from the subject, then moved the candle six feet away. In doing

FACING PAGE—The inverse square law at work. The light falls off quickly from the model's shoulder to her hand, indicating an overhead light placed relatively close to her head.

so, you would have doubled the distance between the subject and the light source. Our instincts may tell us that, since the candle is twice as far away now, the intensity of the light should be half the amount it originally was. This is wrong, though. The amount of light hitting the still life would be the inverse of two squared ($1/2^2$) or one-fourth the amount of light hitting it when the candle was only three feet away. This is equal to a decrease in the light of two f-stops.

The inverse square law is also referred to as light falloff. An understanding of light falloff is very important for successful lighting. Suppose, for example, you are photographing a group of people standing in three rows. If you place your lights three feet from the front row, the back row of people will be about six feet from the lights. If you think of the inverse square law, you'll immediately see that, because the back row is twice as far from the light, the back row will be two stops darker than the front row. This is unacceptable. If, instead, you placed the lights twelve feet away from the front row, then the back row would be about fifteen feet from the lights and only about a half-stop darker. Much better.

Putting It to Use:

1. Photograph a full-length portrait of a friend with a single light. Place the light slightly above their head height at a distance of about three feet. Meter the light from head to toe to see the dramatic light falloff that will occur. Their feet will be six to nine feet from the light—at least twice as far from the light as their head.

2. Keeping the light at the same angle to your subject's face, move it eight feet away. Meter again from head to toe to see that there is less light falloff. The feet are now about eleven to fourteen feet from the light—meaning that the relative difference in distance to the light from the feet and from the head is much less than in the previous shot.

Meter the light from head to toe to see the dramatic light falloff that will occur.

CATCHLIGHTS

In a portrait, the light reflected in your subject's eyes is called a catchlight. Small light sources will produce small pinpoint catch-

lights, while large light sources will produce broader catchlights that often show the shape and curve of the eye. Be aware of the size and placement of catchlights. The entire mood of the portrait can be changed by the use or non-use of catchlights. In addition, you will see that some people's eyes need bigger catchlights than others.

The catchlights directly above the model's pupils help to brighten the eyes. They're big in her eyes, indicating a large light source. In this case, it's a large softbox.

READING PHOTOGRAPHS

It is important to look closely at the photographs you see in magazines and elsewhere. They will help educate you about the lighting techniques used to make the photographs.

Ask yourself: Are there catchlights in the subject's eyes? What are the shapes of the catchlights? Are the shadows soft or hard? In what direction do the shadows fall? Does the light fall off quickly from side to side or top to bottom? Is it a classic lighting setup?

If there are catchlights in the subject's eyes, we can determine from which direction the light is coming. If the catchlights are small, then we know that the light source is small. If they are big and broad, then a large light source was used. If the shadows in the image are soft, then a large light source was used. If the shadows are black and defined, then a small light source was used. Looking at the direction of the shadows will also help determine the direction the light was coming from.

If there are catchlights in the subject's eyes, we can determine from which direction the light is coming.

If the light hitting the subject falls off quickly from side to side or top to bottom (i.e., it goes from light to dark quickly), then, knowing the inverse square law, you know that the light must have been placed very close to the subject. If the light is even from side to side or top to bottom, then you know that it was placed farther away from the subject.

If you recognize some of the shapes on the face created by light and shadow, then it may be a classic lighting setup or a slight modification of a classic.

TERMS TO KNOW

catchlights—Bright highlights in subjects' eyes that are reflections of the main light.

inverse square law—Law that states that as a light source is moved farther away from its subject, its intensity drops by the square of its inverse.

loop light—Created by placing a light to the side of the camera and angled slightly down toward the subject. This pattern is typified by a loop-like shadow under the nose that extends toward the corner of the mouth.

Rembrandt light—Created by placing a light to the side of the camera, this pattern is typified by an upside-down triangle shadow on the cheek of the dark side of the subject's face.

short light—Lighting the side of the face that is turned away from the camera.

lighting ratios

When using two light sources, the lights each have a different name applied to them. One is the main light and the other is the fill light. The main light does most of the lighting, hence the name main light. It is also referred to as a key light. The fill light is not as strong as the main light, and its function is to lighten the shadows in the areas that the main light does not reach. The terms "main" and "fill" don't just describe studio lights, they can be used to describe any type of ambient light as well.

In order to achieve the results we want in our portraits, it's important to understand the way these two lights interact with each other. It's the light meter that gives us the lowdown on all the sordid details of this relationship. By understanding the readings of the meter, we can predict the outcome of the shot before we even shoot.

It's the light meter that gives us the lowdown on all the sordid details of this relationship.

The term usually used to describe the relationship between the lights is "lighting ratio." This describes the difference in exposure between the highlight side of the subject and the shadow side of the subject and is usually expressed as a ratio (like 2:1, where the highlight side has one stop more light on it than the shadow side). I've always found it a little confusing to refer to ratios this way, though. Therefore, even though I know they are ratios, I prefer to think of

A light was placed behind and to the left of the broccoli. The dome of the light meter was pointed at the light from the top of the broccoli. This light metered f-11. Then, the meter was positioned in the shadow area, pointing toward the lens. This area metered f-2—five stops less than the light from behind. The camera was set to expose the shot at f-4.

A second light was added near the camera. This brought the shadow area up one stop brighter to f-2.8. The exposure on the camera for this shot remained at f-4.

The light near the camera was brought closer to the broccoli. Now, the shadow area read f-4. The exposure on the camera remained at f-4.

these light relationships in terms of f-stops. That's the approach we'll take here.

METERING FOR TWO OR MORE LIGHTS

To see the ratio between two lights, a different metering technique is used. Instead of pointing the meter toward the camera to get a reading, the meter is pointed toward each light. For precision, it is best to meter each light individually by turning off the power to all

Instead of pointing the meter toward the camera, the meter is pointed toward each light.

In this shot, an umbrella was placed above the camera and another was placed beneath the camera. The output of the top umbrella was set at a half-stop brighter than the bottom umbrella.

other lights. Then you know that you are reading only the output from that individual light and not any spill from the others. If all of the lights are connected to a single power pack and cannot be turned off individually, then do your best to block the light coming from the other sources or simply turn those lights away from the subject as you meter. This technique is only used to see the lighting

The subject was lit with two lights: a main light from the upper right, and a fill light next to the camera. The main light metered two stops brighter than the fill light.

Then you know that you are reading only the output from that individual light and no spill from the others.

ratio of multiple lights and not to determine the final exposure. The final exposure is still determined by pointing the dome of the meter toward the camera, from either the highlight area (for film and digital) or by averaging the highlight and shadow (for negative film).

Putting It to Use:

1. We can now use two lights to do some common lighting setups. The first is called glamour or beauty lighting. This setup works well for women. It is a flat, frontal lighting arrangement that minimizes wrinkles on the subject's face. Mount two strobe heads with either softboxes or umbrellas. One strobe is placed on a stand directly above the camera. Another strobe is placed below the camera. You can determine the best angle for the strobes by seeing how the modeling lights hit the subject's face. Meter each light separately to determine their ratio. Generally, this setup looks best when the top light is a half stop brighter than the bottom light. Experiment to find a ratio you like.

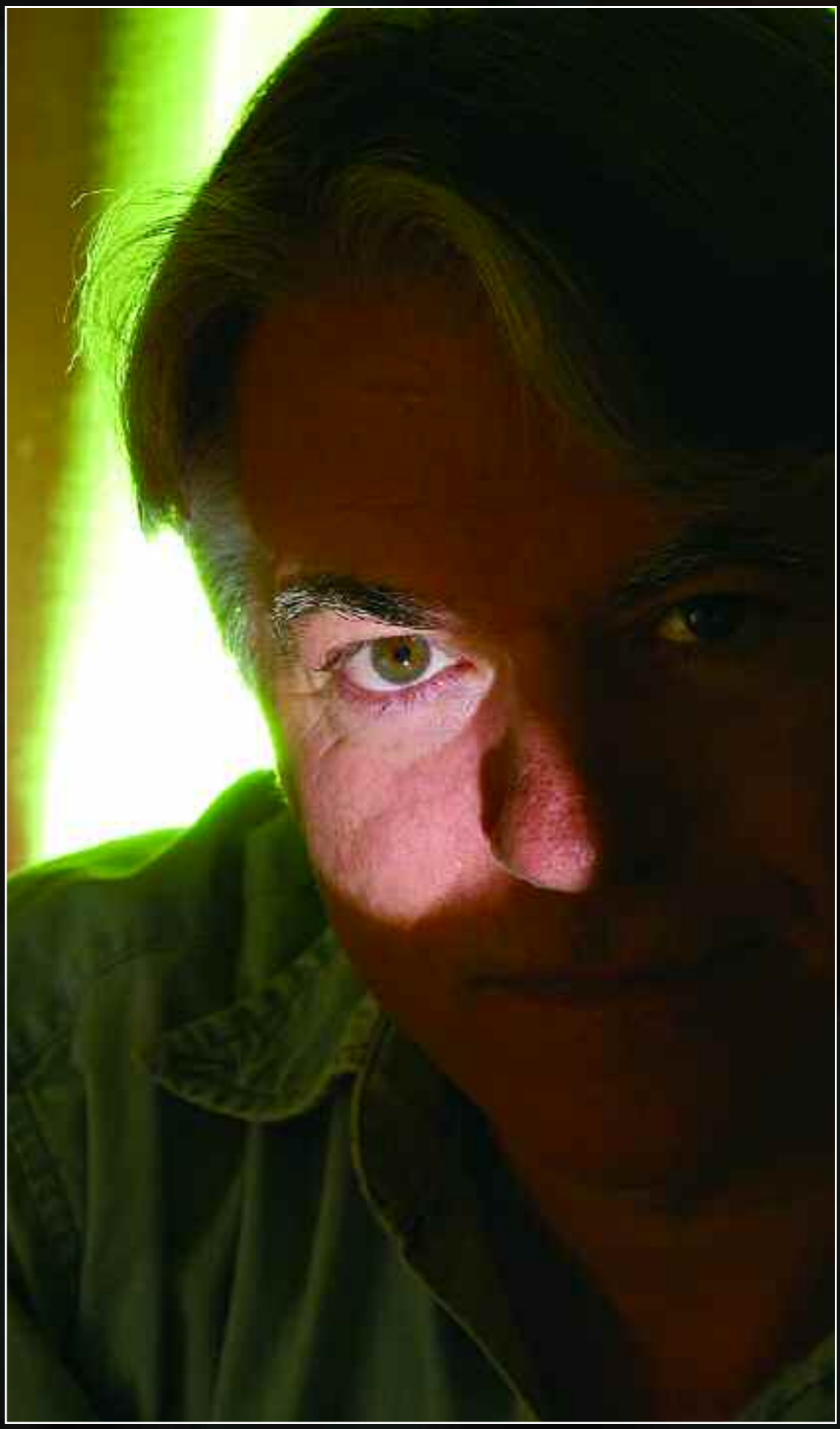
Determine the best angle for the strobes by seeing how the modeling lights hit the subject's face.

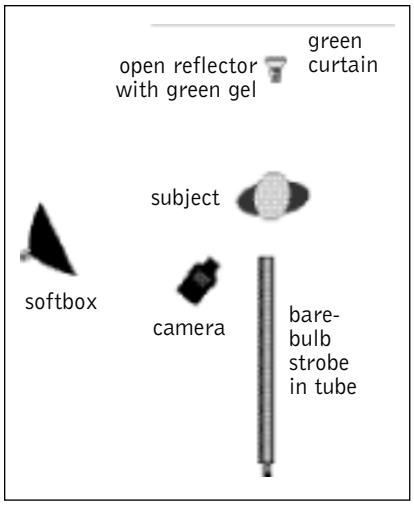
2. Another common setup is to place a main light off to one side of your subject at an angle you find agreeable. A second light placed near the camera (above, below, or to either side) will act as a fill light. Meter the main light to read one to two stops brighter than the fill. The effect will give a side-lit portrait with shadows that aren't too dark. Without the fill light, the shadows would go very dark.

HOW MUCH FILL?

Keep in mind that film and digital capture do not see the world in quite the range of light and dark that our eyes do.

Before doing a shot, try squinting your eyes tightly. What you see when you do this more or less imitates the limited tonal range of film or digital. By squinting, we can see how slightly dark areas become very dark. If there is important detail in these areas, we will need to fill them in with light. It's as if the fill light is helping the film or digital to see the same as our eyes do.





FACING PAGE—This shot was done with three strobes. The background was a green velvet curtain that was lit from below with an open reflector on a strobe. A green gel was taped to this head. The folds of the curtain formed different tones as they reflected this strobe differently. A softbox was placed far to the left to act as a very subtle fill light. A bare-bulb strobe head mounted inside a long cylinder (the long tube that seamless background paper is shipped in) acted as the main light. This light was three stops brighter than the fill light and lit the subject's eye. The cylinder acted as a snoot to make the light source a six-inch diameter circle—the size of the opening of the cylinder. Without the softbox fill light, all areas not lit by the cylinder would have gone very dark. See diagram above.

Don't go overboard with the fill, though. Keeping the fill subtle gives a natural look to the photo, as if a second light weren't used at all. Too much fill can also make the shot flat and boring.

BACK LIGHTING

Back lighting means any light that comes from the rear of the subject. Depending on how it is used, it can also be called rim lighting or hair lighting.

The metering technique used to determine lighting ratios is particularly useful for measuring any light coming from the rear of the subject. It would be difficult to get an accurate reading for back lights if the meter was pointed toward the camera, of course.

TERMS TO KNOW

back light—Any light that comes from behind the person who is the subject of the image.

bare-bulb strobe—A strobe head that is not fitted with any modifier.

beauty light—A flat, frontal lighting arrangement that minimizes wrinkles on the subject's face

CTO gel—Color temperature orange gel. Used for warming the light in an image. For more on this, see chapter 5.

fill light—Light that is used to lighten the shadows created by the main light.

flag—Any device used to block light from hitting an area of the subject or set. For more on this, see chapter 5.

gel—Transparent material used over a light source to change its color. For more on this, see chapter 5.

glamour light—Same as beauty light.

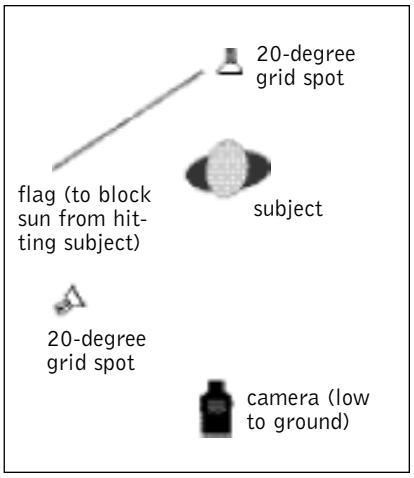
hair lighting—A back light used on the subject's hair to create highlights and enhance separation from the background.

lighting ratio—The difference in exposure between the highlight and shadow sides of the subject, expressed as a ratio.

main light—The principle light in a lighting setup. Creates the pattern of highlight and shadow in the image. Also called the key light.

rim light—The term for a back light when photographing objects instead of people.

snoot—A cylindrical accessory mounted on the light to create a spotlight effect.



This shot was done outdoors on a sunny day. A flag was set up to block sunlight from hitting the subject. The subject's face was lit with a strobe with a 20-degree grid attached. This light was positioned to the upper left of the camera. Behind the subject, another strobe with a 20-degree grid attached was pointed back at the camera. The subject partially blocked this strobe. The back light metered a stop brighter than the front light. A lot of exposures were made to get this shot, because the flare from the back light varied greatly as the subject and camera moved between exposures. If the back light was too apparent, then the flare would have been overwhelming. If the subject entirely blocked the back light, then there would have been no flare, only a rim light around him. See diagram above.

Therefore, it is best to point the meter at the back light to determine its value in relationship to the lighting on the front of the subject.

Putting It to Use:

1. Place a light behind your subject and facing the camera. Your subject will block the light from hitting the lens. Use a second light to illuminate the front of your subject.

   Start with the back light and front light metering at the same f-stop. This will create a distinct back light around the subject.

   Next, set the back light to two stops brighter than the front light. It will create a definite white light around the subject.

The contrast on the front of the subject begins to flatten out and the edges go bright white.

When the back light is set to four stops brighter than the front light, a flare effect is created, wrapping the back light around the subject. At this point, the contrast on the front of the subject begins to flatten out and the edges of the subject go bright white. This is completely acceptable, and it is used in fashion photography quite often. Just make sure you know that flare will occur and to what extent. Use the meter to determine the ratios you like.

The front of the model was lit with a small softbox with a ¼ CTO gel attached. This was placed up and to the right at a distance of four feet from her face. There was significant light falloff to her waist and legs. Another strobe with an open reflector was placed five feet behind her and pointed toward the camera. This light metered three stops brighter than the front softbox. The model's body blocked the greater part of the back light from directly hitting the lens, and the gauze material softened it.

CHAPTER FIVE

gels, flags, and shadows

Strobe light delivers a light that is closely balanced to sunlight. Because of this, we can use daylight-balanced film when shooting with strobe lights and be confident that colors and tones in our images will be accurate. There are times, though, when we want to modify these colors and tones; to do so, we will use gels.

GELS

Gels, also called colored filters, are tough, heat-resistant sheets of film that are attached to the front of the lights. They are made in a rainbow of colors with varying degrees of intensity.

Using Gels. To apply the gels to the strobe head, use gaffer's tape. It's strong and heat-resistant, and it doesn't leave a sticky residue when removed. Cut the gel into a piece about 14 inches wide by 10 inches tall. Apply two small pieces of gaffer's tape to the 10-inch sides of the gel and tape it on the strobe head horizontally with a slight bow away from the hot modeling lights. (The gels are fairly heat-resistant but will still burn if too close to the modeling lights.) By taping side-to-side instead of top-to-bottom, the gel will stay away from the surface of the strobe and modeling light, rather than resting on top of them.

By taping side-to-side instead of top-to-bottom, the gel will stay away from the surface of the strobe.

Types of Gels. Warming gels produce a more golden or rosy color on the subject we are shooting, something that is especially nice for portraits. One of the most flattering gels is the CTO (color temperature orange) warming gel. It comes in varying degrees of intensity, with the most commonly used being the ¼ CTO (less

A ½ CTO gel was used with a small softbox to warm up the light on the subject. This creates a nice color contrast to the blue sky and river.

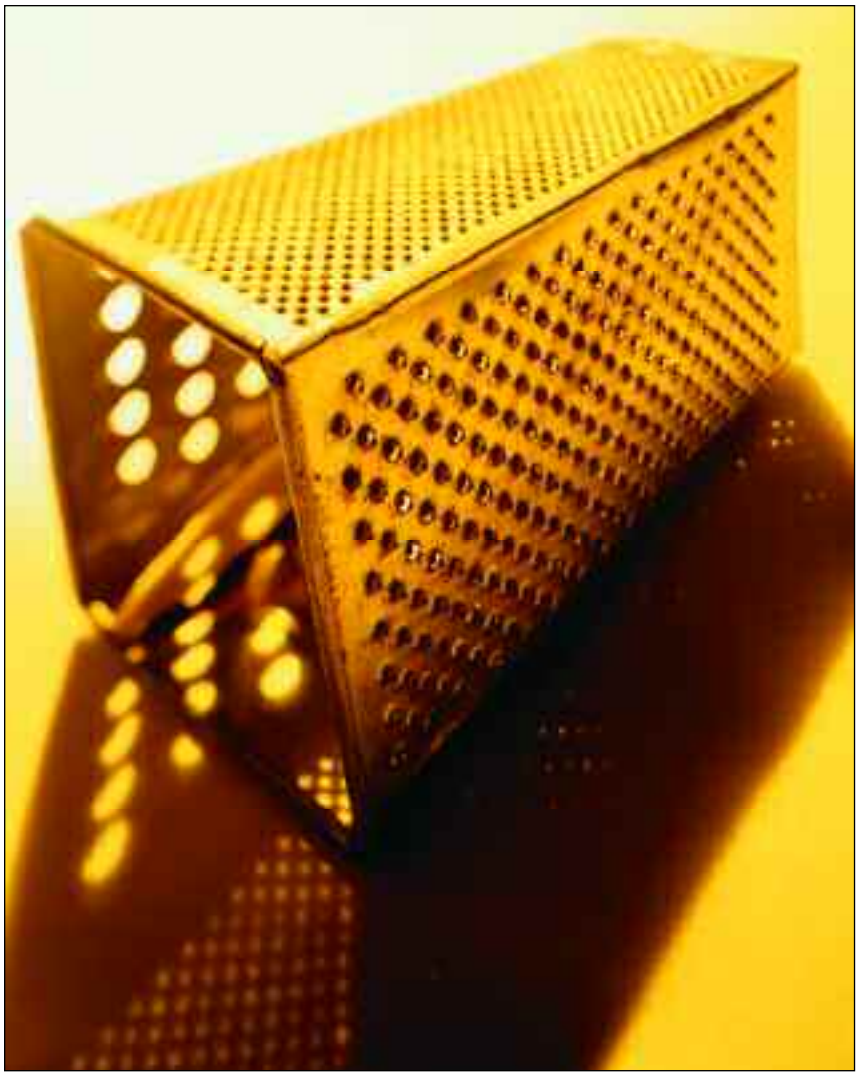
orange) or the ½ CTO (more orange). These gels create a pleasant, warm skin tone for portraits.

Different skin tones need different degrees of CTO. You will find that some people, especially those with warm or ruddy complexions, need less CTO than others. You can also use greater intensities of CTO that will create a sunset-like light that can be used to great effect.

There are other warming gels available. Experiment to see which you like for particular subjects.

Some people, especially those with warm or ruddy complexions, need less CTO than others.

A full CTO was attached to a strobe with an open reflector. This was an overcast morning, but with the CTO it looks like sunset.



Two layers of yellow gel were attached to a tungsten hot light. It was placed above and behind the grater casting shadows forward. Since daylight-balanced film was used, the color of this light went very yellow.

Another gel that is commonly used is the neutral density or ND gel. It is simply a gray-colored gel that is used on the lights to lower the output of the lights. It comes in half-, one-, two-, and three-stop intensities. It is helpful when you have more light output than you need to simply attach an ND gel to the light rather than readjusting the placement or power output of the light.

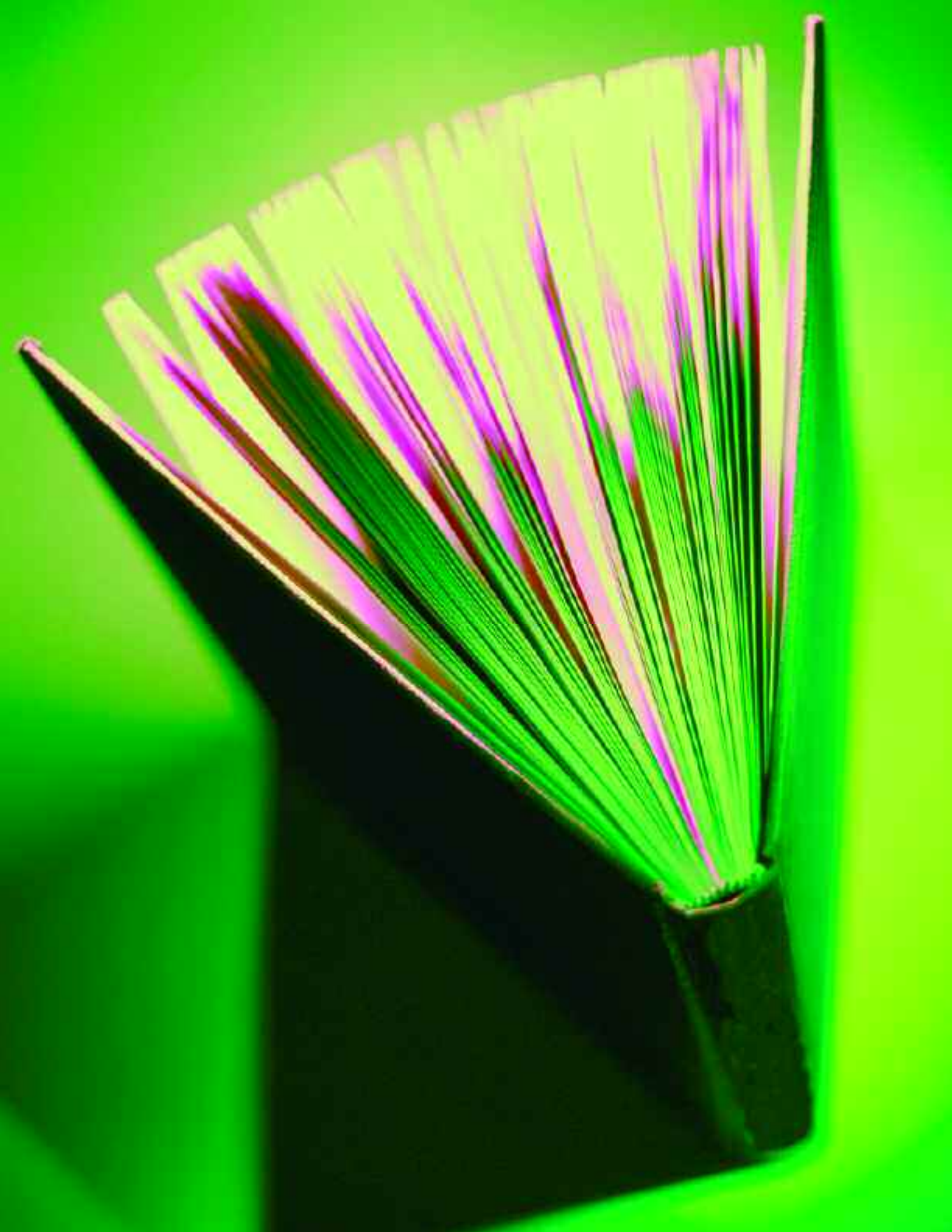
Of course, there are a rainbow of other colored gels to choose from. Rosco makes starter kits with an assortment of colors at a reasonable price. Theatrical supply stores are also great places to find colored gels.

Effect of Exposure. With lighting, we can create many shades of color just by adding or removing light. Imagine, for example, that you attached a red gel to the strobe and pointed it at a white wall. If you took a meter reading of the wall and exposed your film at that setting, your film would render the wall approximately the same shade of red as the gel.

If, instead, you overexposed the film by one stop, the red wall would be lighter and more pastel in appearance. If you went further and overexposed the film by two stops or more, the red wall would start to turn white again.

On the other hand, if you were to underexpose the film by one stop, the wall would turn a deep red. If you underexposed by two stops or more, the wall would start to go to a very dark red and eventually to black.

You could get the same effect with the gel by varying the power output of the strobe and shooting at a consistent exposure. As you



FACING PAGE—A strobe with a green gel attached was placed above and to the right of the book. Another strobe with a magenta gel attached was placed directly in front of the book pointing into the open pages.

can see, it's possible to generate the entire range of a single color from white to black just by exposure or light output.

Light Contamination. Light contamination is a possibility when working with colored gels. This effect occurs when two different colors cross paths. This can be intentional and effective, especially with complementary colors. However, it could also be a mess when, for example, a neutral white light from the front of the set spills onto a red gelled background, resulting in a washed-out, faint red background.

FLAGS

As you advance in your lighting skills, you will find that not everything needs to be lit evenly. Aesthetically, the most attractive shots have some degree of shading. In fact, the best look is often achieved when some elements of the shot are not lit at all. The balance between light areas and shadowed areas makes for an interesting photo. Remember that the viewer's eye will always move toward the lightest (highlight) area of the photo; but if there is no highlight area because the whole photo is evenly lit, then the eye has nowhere to go. This is where the use of flags comes in.

Types. The term "flag" describes any opaque object that is used to block light. It is also

A strobe from the right had a violet gel attached. A cookie was placed in front of it to create a dappled light pattern on the model and the gray background. Another light lit her face from the left.

called a gobo, which stands for "go-between," something that goes between the light and the subject. Flags essentially subtract light from the subject being photographed.

Another object used to block or subtract light is called a scrim or a net. This is a fine black mesh device that blocks only one or two stops of light. It can be used to create a more subtle effect than the flag.

A cuculoris (or "cookie") is also used quite often for interesting effects. A cookie is a piece of opaque material with a cutout pattern, like a flag with holes cut in it. Light passes through the cutout to create a dappled pattern on the subject or background. It's easy to create your own cookies by cutting patterns into a piece of foamcore board.

A strobe was positioned directly above the model. A black flag was placed between the strobe and the model to block light from hitting the side of her face closest to the camera.

Using Flags. If you can selectively subtract half, one, or two stops of light from particular areas of your subject, it will give the appearance of lightening the highlight areas by an equal amount. In this way you can begin to use lighting to emphasize the most important aspects of the subject and deemphasize less important areas.

When working with flags, scrims, and cookies, you will notice that as you place them nearer your subject, the shadow they cast will be more distinct. The edge of the shadow will become more defined as it approaches the subject. Conversely, as the flag is placed closer to the light source, the shadow edge will become softer.

REFLECTORS

The term "reflector" refers to anything used to bounce light. This could be any light-reflecting surface. The quality of light emitted by the reflector will be determined by the device's size and reflectivity.

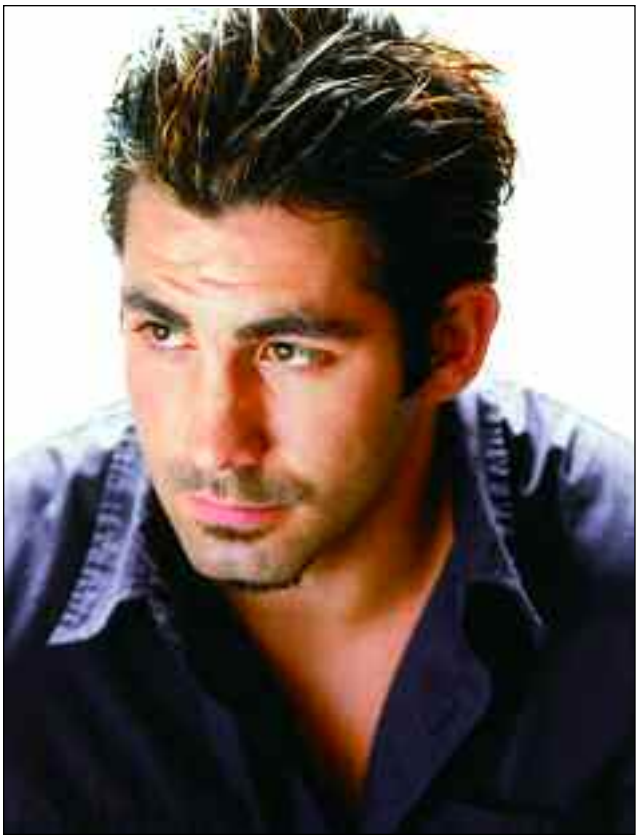
Natural. There are natural reflectors everywhere. For example, think of the light reflected off a skyscraper at sunset. This is a hard light source, since the surface is a window (or windows) reflecting the sun. The overall effect will be a mixture of hard light from the giant reflector (the skyscraper) and soft ambient light from the shaded light at street level.

The quality of light emitted by the reflector will be determined by the device's size and reflectivity.

Another example is a white sand beach in noon sunlight. Of course, this is a very bright situation, but the white sand is actually a soft light source, considering how large it is. An excellent possibility for a shot would be placing your subject under a shaded umbrella, letting the white sand act as a giant reflector.

Man-Made. Manufacturers also make a variety of reflectors. Usually they are silver, gold, white, mirrored, or some combination

This shot was done with natural light only. Sunlight from a window illuminated the model's face only, while her shoulder remained in shadow. A piece of white foamcore board was placed behind the model to bounce sunlight onto her back.



A strobe was placed above and behind the model. A silver reflector was set in front and below him to bounce light up into his face.

Sunlight lit the model's hair directly and bounced off a dirt parking lot to light her face.

of these. They are made with a variety of surface qualities, too, from highly reflective to a softer, matte surface. The reflective surfaces will create a harder light, while the matte surfaces will create a softer light.

Reflecting a hard light source, such as the sun, with a highly reflective surface will create a very hard light. A good application of this is using a gold reflector to reflect sunlight onto a subject in the shade. This creates a believable sunset light.

Reflectors for Fill. Reflectors work great at filling in shadows. Whether in the studio or outdoors, a reflector placed near the opposite side from the light source can help soften a high-contrast lighting situation.

Remember that neither film nor digital can "see" the extensive tonal range that our eyes can, so opening up shadows with a reflector can give the shot a more pleasing look. Don't forget the squint test, too!

FACING PAGE—The artichoke was placed on a table next to a window. An overcast sky lit the backside of the artichoke with soft light. A small hand mirror reflected light onto the side closest to the camera.

OPEN REFLECTOR

As was mentioned earlier, the open reflector is the curved metal dish that is supplied with the strobe head. It is sometimes called simply a reflector or a standard reflector; but those terms could be confused with the definition for anything used to reflect light. Therefore, in this book we will refer to it as the open reflector.

The standard size of the open reflector is seven inches. However, there are other sizes designed for narrower or wider light

The open reflector is the curved metal dish that is supplied with the strobe head.

A strobe with an open reflector attached was positioned to the right of the model. A flag was placed between the strobe and the model to cast a shadow. The light at her feet was three stops brighter than the light on her face.

distribution. When attached to the strobe head, the silver inside of the open reflector focuses the light in one direction, adding two to three stops of light compared to the bare bulb of the strobe head. It is particularly useful for lighting big areas and backgrounds. Since the open reflector is a hard light source, it works particularly well with flags and cookies to cast well-defined shadows.

The open reflector can also be used to generate "fake" sunlight; since, like the sun, it is a hard light source that throws light in a big area. Think of a shot you may have taken in the past where you photographed someone sitting at a window with sunlight streaming in on his or her lower body. Your in-camera meter probably averaged the scene so that the sunlit area was overexposed, the background was underexposed, and their face was (hopefully) properly exposed. We recognize this shot as the way film/digital would interpret this scene. It is easy to mimic this effect with the open reflector. Point the open reflector toward the lower half of your subject's body at a believable sun angle. Using the light meter, we can purposely overexpose the lower half of someone's body but keep their face properly exposed.

Putting It to Use:

1. Use varying degrees of CTO gels to make a portrait. Determine which degree of warmth works best for a particular subject's skin tone.

2. Use an open reflector to light your subject. Use a flag or a scrim to block light from hitting selected areas of your subject. Use the modeling light to see if important areas are getting enough light. Don't flag too much! Experiment by moving the flag closer to the subject to create harder-edged shadows or closer to the light to create softer-edged shadows. Then use a cookie instead of a flag in front of the light to cast a dappled light pattern on your subject.

3. A flag can also be used with a soft light like a softbox or umbrella. For a portrait or still life, place the flag as close as possible to the subject without it showing in the camera's view. Even with a soft light source, the flag will cast

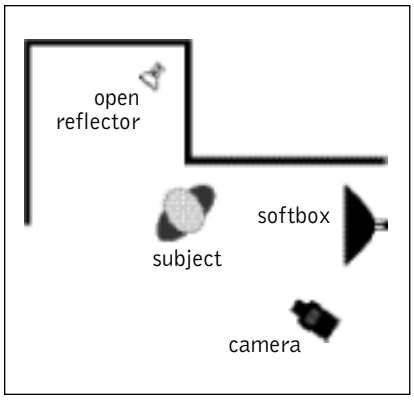
Use the modeling light to see if important areas are getting enough light. Don't flag too much!

a reasonably defined shadow edge when it is placed this close to the subject. You can also take a crack at overlapping two flags to form an L shape; this will create a right-angle shadow. If you want the shadow edge more defined, back the light away from the subject to make it a smaller light source.

4. Take a walk around your neighborhood and take a photograph where the subject is lit by reflected light. Think about the surface the light is bouncing off of. Does it cre-

If you want the shadow edge more defined, back the light away from the subject.

The subject was photographed in open shade. Two white foamcore boards bounced sunlight onto her face. The reflections of the foamcore are visible as catchlights in her eyes.



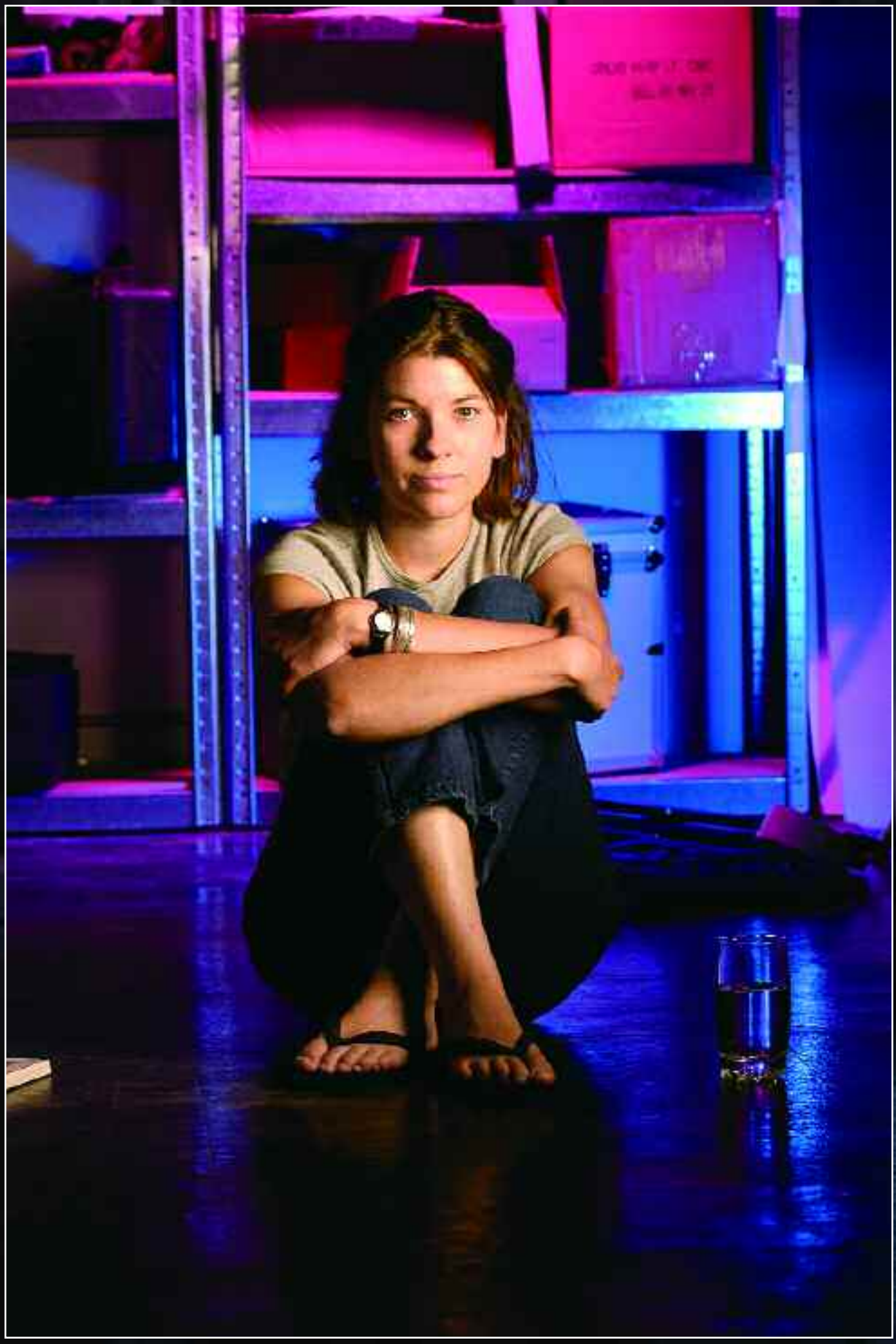
Here, an unappealing background was intentionally overexposed by two stops to make it less noticeable. A strobe head with an open reflector lit the bathroom in the background and the model's hair. A softbox lit her face. See diagram above.

ate a soft or hard light? What color is the surface? This exercise will help you start to notice the natural reflectors that exist everywhere.

Use one or two pieces of white foamcore to reflect sunlight onto their face.

5. Have a friend stand in open shade (a shady area surrounded by a big sunny area). Use one or two pieces of white foamcore to reflect sunlight onto their face. Try placing the foamcore at different heights and angles.

6. Find an unappealing background. Use an open reflector with a colored gel attached to light the background. Use



FACING PAGE—You may find yourself shooting in a spot that has an ugly background that cannot be avoided. One way to make it more interesting is to use colored gels. In this shot, two lights lit the background, one with a red gel and the other with a blue gel. The subject was lit with a small softbox with a 1/4 CTO gel.

another light to light your subject in the foreground. Make sure that your subject is well away from the background. Be aware of the direction of the lights to avoid light contamination. Vary the output of the background light to create different shades of color and make the unappealing background more interesting. Alternately, don't use any gels on the background light but simply overexpose the background by two to three stops to make it less noticeable. The ugly details will wash out to white.

7. Photograph someone at a window with sunlight hitting his or her hands and lower body. Use this shot as a guide for creating fake sunlight with the open reflector. Now, move to an area with no sunlight. Position the strobe with an open reflector so that light hits only the lower body (approximately waist and below) and not the face. Meter the lower body to be three to four stops brighter than the face. What makes a believable sunlight is a strong contrast from highlight to shadow. If you need to adjust the lighting ratio, set up another strobe near the camera to act as a fill light on the person's face. Also try these shots with varying degrees of CTO gels.

8. Create fake sunset light with the open reflector. Tape a full CTO to the light and place it at a low angle to your subject at a believable sunset height. This time, let the light hit your subject's face directly.

TERMS TO KNOW

cookie—A piece of opaque material with a cutout pattern, like a flag with holes cut in it.

cuculoris—Same as a cookie.

flag—Any opaque object that is used to block light.

gel—Tough, heat-resistant sheet of film that is attached to the front of a light.

gobo—Same as a flag.

net—Same as a scrim.

open reflector—The curved metal dish that is supplied with the strobe head.

open shade—A shady area surrounded by a big sunny area.

reflector—Any natural or man-made object used to bounce light onto a scene or subject.

scrim—A fine black mesh device that works as a flag but blocks only one or two stops of light.

grid spots

The grid spot is one of the most versatile light modifiers. It can be used by itself or with any other light modifier. It has a hard quality of light but can easily be softened with diffusion material like Tough-Spun or Tough-Frost manufactured by Rosco. The honeycomb design of the grid spot directs the light forward, creating a spotlight effect. It comes in varying degrees, with a boxed set usually consisting of 10-, 20-, 30- and 40-degree grids. The light the grid produces is brighter in the middle and darker toward the edges.

The honeycomb design of the grid spot directs the light forward, creating a spotlight effect.

CREATING DRAMA

By itself, the grid spot can make a shot dramatic by lighting only selected areas, while the rest of the subject goes black. Used with other lights, it can selectively brighten areas of the subject.

Putting It to Use:

1. Use the grid spot to light only a portion of your subject. For example, light only someone's eyes and let the rest of their face go dark. Alternately, light only their face and let the rest of their body go dark. Use the natural light falloff of the grid to your advantage by aiming the center of the

light at the area you want the brightest. Areas surrounding the highlight will gradually fade to dark.

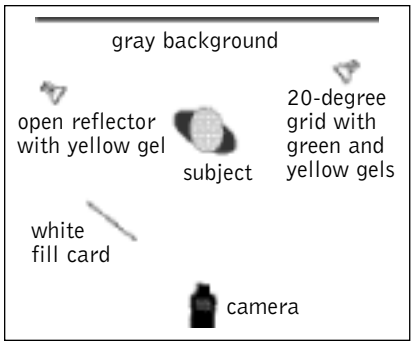
2. Use the grid spot with another light. The grid will be the main light, while the other light will provide fill. For example, place a grid spot fitted with a 10-degree grid directly in front of a softbox. Point the grid at your subject's face. Use the softbox to light the entire person. Adjust the output of the grid spot to read two stops brighter than the softbox. The effect will look like only one light was used but the face will be brighter than the rest of the body.

A strobe head with a 30-degree grid and a blue gel attached lit the subject. The strobe was pointed at the man's face. The grid spot kept all the light on his face and upper body. A second strobe with an open reflector was placed behind the subject, pointing at the back wall.

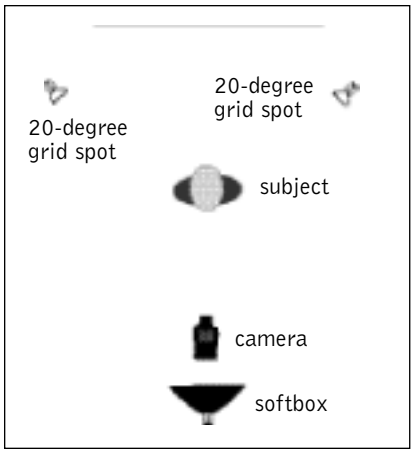
3. Place a strobe with a tight grid spot (10 or 20 degree) at a distance of eight feet from your subject. Then place a 3x3-foot diffusion panel between the light and your subject at a distance of six feet from your subject. The diffusion will make the grid-spot effect a bit softer, but the light will still be focused in a tight area, creating some dramatic light falloff.

HAIR AND RIM LIGHTING

The grid spot is a perfect choice for a hair light. It is easy to direct a grid spot onto a specific area on the back of the subject. Without the grid spot, the light would spread in a very wide area. There's nothing wrong with that, but when you need to highlight smaller areas



FACING PAGE—A strobe with an open reflector and a yellow gel attached was placed to the left of and slightly behind the model. This light also hit the gray background. A second strobe with a 20-degree grid and sandwiched green and yellow gels was placed to the right of the model, above and slightly behind him. This acted as a hair or rim light (notice the lit edge on his shirt on the right). A small white fill card was added in front of the model to bounce some light from the strobes into his face. The dark areas of his face metered $2^{1}/_{2}$ stops less than the highlights. See diagram above.



A small softbox above the camera lit the model's face. There were two more strobes placed 45 degrees behind and slightly above the model to act as kickers. They had 20-degree grids attached and were aimed at the side of his face. These lights were adjusted to be one stop brighter than the softbox. See diagram above.

on the back of the subject, then a grid spot fits the bill. The traditional location for a hair light is behind and above the subject, but feel free to place it wherever you think is the most appropriate for the person's hair.

A kicker is another light that comes from the rear of the subject but, instead of only lighting the hair or rim of the subject, it lights the side of the subject, creating a slight glare on the side of the object or subject's face. The grid spot works nicely as a kicker as well, keeping the light centered on the side of the face only.

Putting It to Use:

1. Set up a softbox or umbrella to light the front of your subject. Set up another light with a grid spot from behind

your subject to act as a hair or rim light. Carefully place the hair light so that it only lights the hair of the person or the rim of the object. As a starting point, meter both lights to read the same. When metering two or more lights for their ratio, remember to point the dome of the meter at each light. For your final exposure, point the dome of the meter at the camera from the highlight area (transparency/digital) or average the highlight and shadow area (negative film).

When metering two or more lights for their ratio, remember to point the dome of the meter at each light.

For a second shot, turn the power up on the hair light to read two stops brighter than the front light on the subject. Then try some more extreme ratios (e.g., four stops brighter on the hair light).

2. Move the light lower and a bit more to the side of the subject to light the side of their face. At this position, the hair light is now a kicker. It is important that the light still come from slightly behind the subject since we want the light to bounce off the side of the subject's face and into the lens to create a small glare. The kicker can also be used for an object. The glare created by the kicker will probably wash out any detail on the side of the subject, but it makes up for it by defining shape along the subject's side with a high-contrast edge. Experiment with different ratios between the two lights. Also try placing the kicker in different positions.

TERMS TO KNOW

diffusion panel—Any translucent white material.

grid spot—A light modifier with a honeycomb design that directs the light forward, creating a spotlight effect.

hair light—A back light that illuminates the subject's hair.

kicker light—A back light that adds a slight glare on the side of the subject's face.

rim light—A back light that lights an object.

color temperatures and mixed lighting

The term "color temperature" refers to the Kelvin scale for measuring the color of light. The higher the number on the scale, the more bluish the light appears; the lower the color temperature, the more orange or warmer it appears. Some common light sources and their color temperatures follow:

LIGHT SOURCE	COLOR TEMPERATURE
Candlelight	1800K
Sunrise or sunset	3000K
Household lightbulbs (incandescent)	2400–3000K
Tungsten or quartz photo hot lights	3200K
Fluorescent lights	4200–6000K
Midday sun on a clear day	5500K
Overcast sky	7000K
Open shade	9500K

The term "color temperature" refers to the Kelvin scale for measuring the color of light.

It is important to note that changes in lower color temperatures always create a greater shift in color than changes at higher color temperatures. For example, at a color temperature of 3200K, a shift of 400K would produce a noticeable shift in color. However, at a

color temperature of 8000K, a shift of 400K would produce only a very subtle shift.

CORRECTING COLOR SHIFTS

From the chart above, you can see there are a lot of different color temperatures to deal with. Since daylight film is balanced to work with sunlight and strobe only, when working with light sources that are not 5500K, it is necessary to "correct" them so that they are more neutral in appearance. Using filters on the lens, or gels on the strobe head/light source can accomplish this.

The baby bottle was photographed next to a window. The window light was very cool, so an 81D (warming) filter was used on the lens to lower the color temperature, thereby warming up the shot considerably.

Lens Filters. The three most common lens filters used for color correction are the 80 series, 81 series, and FLD. The 80-series filters are bluish in appearance and are used in situations where the light is too warm for daylight-balanced film, such as when shooting with household lights. The 81-series filters are used for the opposite effect; they are orange in appearance and are used to warm up a cool lighting situation, such as when shooting with daylight on an overcast day. The FLD filters are magenta in appearance and correct for the green light produced by fluorescent lights. All of these filters come in varying intensities.

Combining Two Light Sources. When combining strobe lighting with other light sources that are not daylight balanced, you must balance the color temperature of the strobe. To do this, you will use a gel to make the strobe match the color temperature of other light sources used in the scene. The goal is to get all of the light sources to approximately the same color temperature. For example, if you were shooting in a room lit by fluorescent lights and

you needed to use strobe light on your subject, you would have to put a green gel on the strobe in order to make all of the light sources the same color temperature. Then you would correct the overall color temperature with an FLD filter on your lens.

Combining Multiple Light Sources. Scenes lit with several light sources of different color temperatures are difficult to photograph. A room lit by fluorescents, household lamps, and northern window light is a headache waiting to happen. Making multiple exposures, one for each light source, and correcting each with the appropriate filter is one solution. However, it is not recommended to make anything more than a double exposure. Even with a rigid tripod, making more than two exposures on the same piece of film is a risky endeavor. Misalignment could occur due to subtle camera movements between exposures.

Another option would be to use colored gels to cover each light source in order to correct it to neutral. For example, you could cover the household lightbulbs with CTB gels. These bluish gels add approximately 500–2300K to a light source, depending on the intensity of the gel. Then you could cover the north-facing window with a CTO gel that would lower its color temperature. Lastly, covering the fluorescents with magenta gels (like the Rosco Tough Minusgreen) would convert them to approximately 5500K.

A white balance could be made for each color temperature used and a different exposure made for each.

Using a digital camera is another option, and it may be the best choice. A white balance could be made for each color temperature used and a different exposure made for each. Any subtle camera shifts among the exposures could easily be corrected in Photoshop.

The last option is to let the color temperature do what it wants and not worry about it. Many successful shots have been taken without correcting the color temperature. The warm glow given off by household lights can be used effectively to add a warm mood to the scene. The cool light produced by northern window light or open shade definitely has its own feeling; and fluorescents, too, believe it or not, can add a surreal green glow to the background of a portrait.

MIXED LIGHTING, EXPOSURE, AND ENVIRONMENTAL PORTRAITS

In the situations described above where you need to combine strobe with ambient light, you are shooting in what's called a mixed light-

This shot was made in a motel room lit with fluorescent lights—an ugly setting! A small softbox with a half CTO gel lit the subject. His face was turned away from the fluorescents to minimize their effect. The background was underexposed by half a stop.

ing situation. In such situations, careful attention needs to be paid to the exposure of both light sources.

A Practical Example. For example, let's say you're taking a portrait of a friend at a doorway with a fluorescent-lit room behind him or her. Position your friend away from the ambient light so that their face is at least two stops darker than the room light. This way, it will be easier to control the ratio between the fluorescent-lit background and your strobe-lit friend.

You need to consider the exposure of the room and the exposure of the strobe on your friend to make a good shot. It's like combining two shots into one. Your light meter or in-camera meter may tell you that a good exposure for the room is 1/15 second at f-5.6. If you were to take a shot at this exposure without any strobe on your friend, the result would be a good exposure of the room in the background, but your friend would be dark. Alternately, if you turned on the strobe and your light meter indicated that a good exposure on your friend was 1/125 second at f-8, you would get a nice shot of your friend, but the room would be three stops underexposed.

You would get a nice shot of your friend, but the room would be three stops underexposed.

How can we get a good exposure on your friend and the background at the same time? The answer is in the strobe. If you remember from chapter 2, the strobe doesn't care what shutter speed you use. It will always put out the same amount of light when set at a specific setting. Indoors, the light meter will get virtually the same reading from the strobe at 1/250 second as it does at 1/30 second. That's because, at these shutter speeds, the meter is only reading the instantaneous pop of the strobe. You would need to turn the light meter to a much slower shutter speed to begin to see any influence from the ambient light of the room.

Therefore, in order to match the strobe exposure to the background exposure in your shot, you should begin by reading the strobe at 1/15 second—the same shutter speed used for the background exposure. The f-stop will probably read similar to the first reading at 1/125 second. Then, it will be easy to lower the power of the strobe so that its output will read f-5.6—the same f-stop used for the background exposure. Then the final exposure will be 1/15 second at f-5.6—a good exposure for your friend and the background. With slow shutter speeds like this, you will need a tripod to minimize camera shake.

With slow shutter speeds like this, you will need a tripod to minimize camera shake.

It's easy to vary the exposure in mixed lighting situations too. By shooting at a slower or faster shutter speed, you can bracket the exposure on the background without affecting the strobe exposure on the subject. In our example, if you shot at 1/30 second at f-5.6, the background would go darker by one stop while the exposure on your friend would stay the same.

Keeping the Focus on the Subject. This type of shot is called an environmental portrait because there is a connection between the subject and the environment surrounding them. The background helps us to "read" the person. For instance, if we were to see a shot of a man in a nice suit standing proudly in front of a bustling casino floor, we would first ask, "Who's that guy?" rather than "Where's that casino?" The point is, people are usually the most important part of an environmental portrait. The background just helps to fill in their "background" story.

What are some of the ways that we can keep most of the attention on the person in a shot like this? You already learned that we can make the subject jump out of the background by making them

one stop or more brighter than the background. Another way to keep focus on the person is to literally keep the focus on them by using a shallow depth of field. In the previous example, you could set the power of the strobe very low so that its output reads f-2.8, and photograph your friend at 1/125 at f-2.8. This will render the background one stop underexposed and out of focus.

Contrast Between the Subject and Background. A different way to keep the emphasis on the person is to create contrast between the person and the background. The person could have dark clothes

This shot was made with tungsten-balanced film. In daylight, this film renders everything with a bluish tone. A single strobe with a 20-degree grid and two layers of full CTO were used to light the model's face. A single CTO would have been rendered neutral by the tungsten-balanced film. Using two layers warms up the face significantly.

This is a similar setup as the last photo. Tungsten-balanced film was used. A 40-degree grid was fitted with two sandwiched gels, for a total of 1½ CTO.

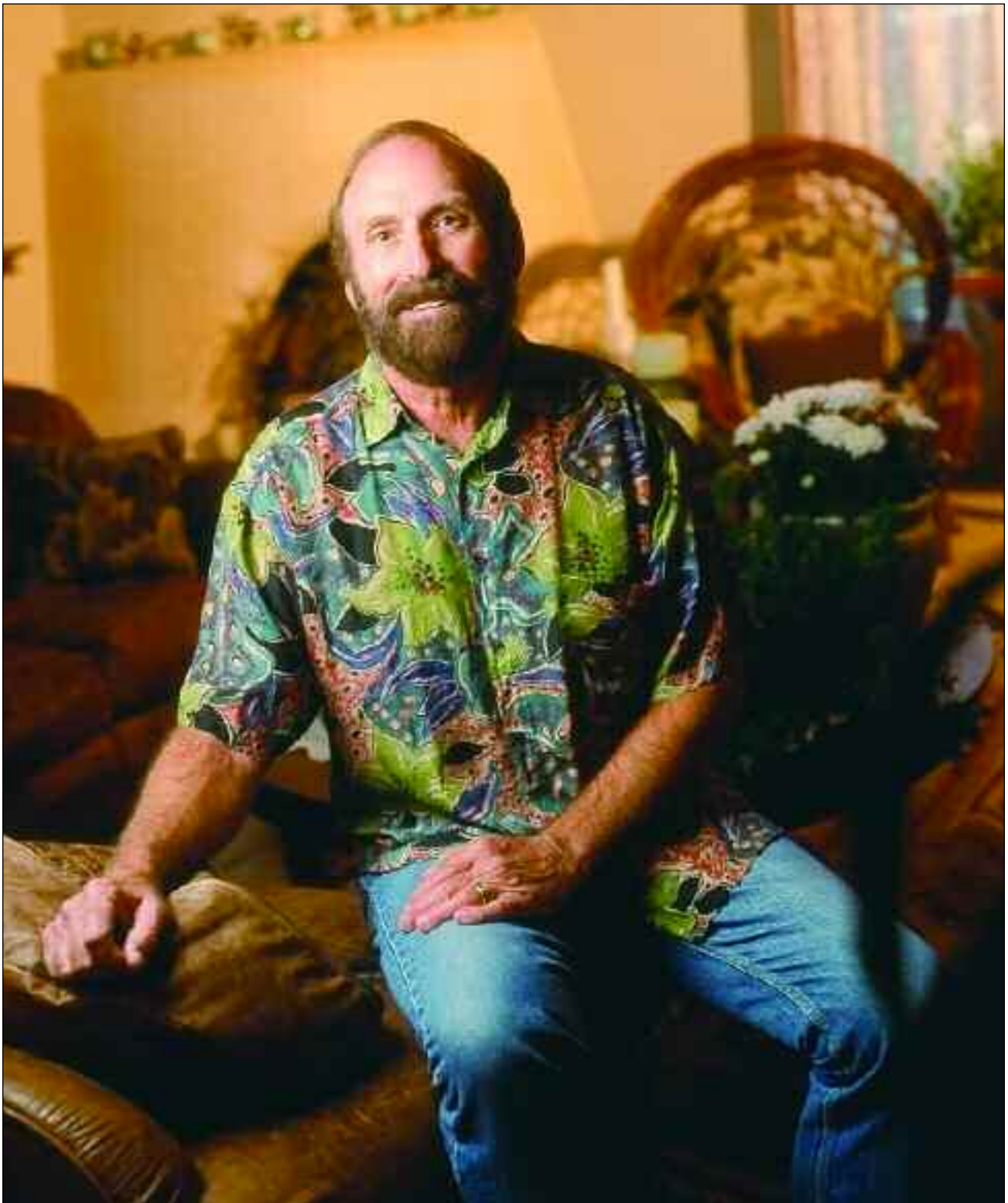
on while the background is very light or vice-versa. The person could wear bright colors while the background is colorless, monochromatic, or complementary in color. In the scenario described above where daylight lit the background and strobe lit the subject, you could make the person neutral colored and let the rest of the shot go blue. To do this, you would put an 80A filter on the lens, then light the person with a strobe that has a full CTO gel attached. The CTO would neutralize the bluish effect from the filter, while allowing the rest of the scene to remain blue.

Contrast between the person and the background isn't limited to lighting or camera techniques either. There can be contrast in attitude and feeling as well. A story could still be inferred between two elements that don't seem to go together. Be creative! A big drooling St. Bernard in the foreground with a formal outdoor wedding in the background would certainly be a memorable shot. A baseball player riding the subway would definitely get people thinking. A Santa-Claus suit hanging from a clothesline while a beach and palm trees are seen in the distance certainly has a twist. A young girl in a sparkling pink dress stands at the edge of a swimming pool full of rowdy boys—there's a story waiting to happen. The point is that by creating emotional contrast between subject and background, you are creating a story and, thus, an interesting photograph. Even just bringing a single element into the shot that is out of context to the background can make the shot more attention grabbing. A portrait of someone sitting in an office chair in the middle of the forest will make for a curious shot, for example.

Composition. Be aware of composition as well. Placing your subject carefully in relation to the background is key. If the back-

ground is symmetrical, it makes sense to place the person in the center. If it's not symmetrical, look for lines or shapes that lead the viewer back to the person. You can also look for shapes in the background that will help frame the person. Be meticulous in placing the person in an area where they will stand alone against the background without lines or shapes coming out of their head.

Scale. Scale is another consideration. How big will the person be compared to the background? Using a wide-angle lens with the subject near the camera will have the effect of making them look



Photographing the subject in his home put him at ease. He was lit with a small softbox in a classic loop light position. The background was lit with another strobe—with an open reflector and half CTO attached—placed off the set to the right. The background was underexposed by half a stop.

This photo was made with a view camera and Polaroid Type 55 film. Existing elements in the scene were used to bring the viewer's eye back to the subject. A small softbox placed up and to the right lit the woman.

large next to a distant background. On the other hand, using a telephoto lens will help keep the person in scale with the environment.

You will find that people will relax more when they are photographed in an environment other than the studio. Let your subject use some of the elements from the environment as props. If you're shooting someone at a diner, let him pour ketchup on a burger. If you're photographing an executive at her office, let her sit at the edge of her desk holding some reports. People need something to do with their hands. Use the props that exist at the location.

Putting It to Use:

1. Find a room lit with a light source that is not daylight balanced. Use strobe to light your subject in the foreground. Put the appropriate gel on the strobe to match it to the color temperature of the rest of the room. Then use a corresponding filter on the lens to correct the overall color temperature to neutral.

2. Find an interior scene lit by multiple light sources. Use one of the methods described earlier to get all of the lights neutral.

3. Find a scene lit by fluorescent or household bulbs. Photograph a friend in a doorway in the foreground with

FACING PAGE—The rock formation in the distance guides the viewer's eye to the subject. Contrast is created by scale and lighting (i.e., the subject was made large in the frame by using a wide-angle lens, and his face is lit in comparison to the silhouetted rock formation). The subject was lit by a Metz flash mounted on a small light stand just out of camera view to the left.

strobe and let the room lights stay uncorrected. Match the exposures on the background and your friend. Then bracket the exposure on the background only by changing shutter speeds.

4. Try another environmental portrait. Keep in mind the contrast between the person and the background. Contrast will help keep attention on your subject. Contrast comes in many forms: exposure, color, focus, light and dark, size, and feeling.

TERMS TO KNOW

80-series filters—Bluish in appearance and used in situations where the light is too warm for daylight-balanced film, such as when shooting with household lights.

81-series filters—Orange in appearance and used to warm up a cool lighting situation, such as when shooting with daylight on an overcast day.

color temperature—Refers to the Kelvin scale for measuring the color of light. The higher the number on the scale, the more bluish the light appears; the lower the color temperature, the more orange or warmer it appears.

CTB gel—Color temperature blue gel. Used for cooling the light in an image.

CTO gel—Color temperature orange gel. Used for warming the light in an image. For more on this, see chapter 5.

FLD filters—Magenta in appearance and used to correct for the green light produced by fluorescent lights.

strobe and sun

It may seem crazy to think that a strobe could be brighter than the sun, but at a fast shutter speed it can be. Just as a candle can be made to light up an entire room with the correct exposure, so can the sun be made to go dark with the correct exposure. Remember, once again, that the strobe doesn't care what shutter speed you shoot at. It will always put out the same amount of light at a specific power setting.

OVERPOWERING SUNLIGHT

We can take any lighting setup from the studio and use it outdoors. Just remember that this creates a mixed lighting situation, so there are two exposures combined into one here—an exposure for the sunlit background and an exposure for the strobe on your subject. To create contrast between our subject and the background, we will intentionally underexpose the background. This way, our subject will "pop" out of the background.

Remember, once again, that the strobe doesn't care what shutter speed you shoot at.

To do this, begin by setting your camera to its fastest sync speed. Then, meter the background with a light meter or your in-camera meter. Let's say the correct exposure is $\frac{1}{250}$ second at f-11. Then, set the power of the strobe on your subject to read f-16. With the final exposure set on the lens for $\frac{1}{250}$ second at f-16, your subject will be

correctly exposed and the background will be underexposed by one stop. You can then bracket by shooting at a slower shutter speed to make the background go lighter.

This is a glamour light setup used outdoors. Two strobes with open reflectors were used. One was placed above the camera and the other below. The top strobe was set to meter a half-stop brighter than the bottom strobe. This was shot in the late afternoon with sun shining directly into the model's face. A flag was set up to block the sun so the model wouldn't squint. The shadow of the flag is visible to the right of the model just above the bumper. The strobes, though, fill in the shadow so that it's hardly noticeable.

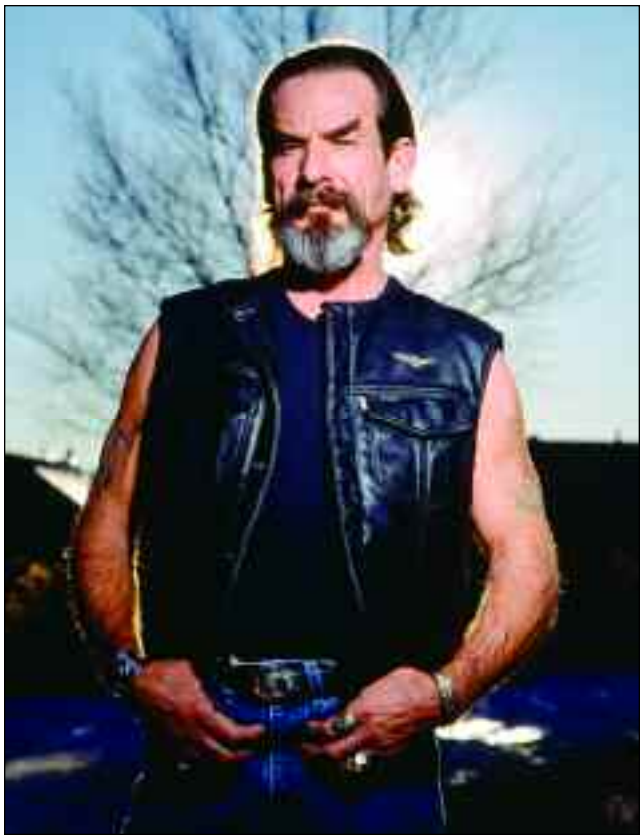
If sunlight is hitting your subject's face, a flag can be placed over the subject to block the sun from hitting them directly. This will prevent them from squinting and will create a more consistent looking light—no double shadows from strobe and sunlight. This is not mandatory, though. Feel free to place your subject anywhere you want in relation to the sun. Use the sun behind your subject as a hair light, or create some subtle flare by letting it spill over the subject's shoulder into the lens.

Putting It to Use:

1. Try outdoor versions of some of the studio setups discussed previously. Try the Rembrandt light, beauty light, and short light. Try it with a softbox, umbrella, grid spot, or open reflector. (You can use a sandbag on the light stand to prevent the wind from knocking over the light.)

This is good practice in placing the lights, since you probably won't be able to see what the modeling lights are doing in the bright daylight. Try to imagine the outcome of the shot by seeing exactly where the strobe is pointed and imaging its quality of light. Initially, meter the background to be one stop darker than the strobe on your subject. Then turn up the power of the strobe and

This shot was done in the middle of a bright sunny day. No flags were used. Three strobes lit the model. All had 20-degree grids attached. Two strobes were placed slightly behind the model on either side of him and acted as kickers, lighting the side of his face. The third strobe was one foot above the camera and angled down at the model. The kickers were two stops brighter than the front light. The background was underexposed by 1½ stops.



Late afternoon sun comes through tree branches creating a slight flare around the subject's head. Normally, any background elements that come out of the subject's head are distracting, but the lines of these branches lead the viewer's eye back to the subject. A strobe with a 30-degree grid and ¼ CTO attached were placed to the right of the camera at a height of seven feet.

re-meter your subject. The background should be relatively darker now.

Try these shots at slower shutter speeds to selectively lighten the background only. Also consider the aspects of environmental portraits discussed in chapter 7. Remember the aspects of contrast, composition, and scale.

OVEREXPOSING A SUNLIT BACKGROUND

We can apply the same idea in reverse by letting the sunlight overexpose the background. The idea is, again, to create contrast and separation between the subject and background.

One way to do this is to put a flag or diffusion screen (i.e., any translucent white material that creates even illumination) above your

FACING PAGE—The model was placed next to a window with afternoon sun lighting his rear shoulder. A white fill card was used to the left of the camera to light the model's face. Even with the fill card, the background read four stops brighter than the model's face. A minor amount of flare was created by this ratio. A slow shutter speed (1/15 second) was used to create a bit of blur.

This series shows how easy it is to change the appearance of the background. If the background is unappealing, you can make it "disappear" by overexposing it. The subject was seated indoors with a tall window behind him. He was lit by a small softbox with a 1/4 CTO gel from the upper left. An exposure for the background outside the window was taken with the in-camera meter. It read 1/160 second at f-11. The power of the strobe was adjusted to read f-11. An exposure of 1/160 second at f-11 was made, resulting in this shot.

For this shot, the power of the strobe was reduced to meter at f-5.6. A slower shutter speed of 1/125 second was used as well. The background is now 2 1/3 stops brighter than the previous shot.

In this shot, the power of the strobe was kept the same. However, the shutter speed was dropped to 1/40 second. The background is now 1 2/3 stops brighter than the previous shot and four stops brighter than the first shot. The key to this sequence is making sure there is enough separation between subject and background. The initial ambient light reading on the subject's face and the background showed a huge difference of more than six stops. However, if the subject were closer to the bright background, this degree of light control would have been harder to achieve.

subject to block the sun. In direct sunlight, this should block about a stop of light from hitting your subject. Meter at the subject's face and the background should be about a stop overexposed. On an overcast day, however, the flag or diffuser will have little effect.

Another way to do this is to place your subject in open shade, like in a doorway or inside a building with windows behind them. Meter the difference between your subject's face and the bright background. Try to get the background three stops brighter than your subject's face. If it is more than three stops brighter, you will have to add more light to your subject's face with strobe or a fill card. It is easy to bracket the background by, once again, using your shutter speed. Faster shutter speeds will make the background dark-

In direct sunlight, this should block about a stop of light from hitting your subject.

er; slower shutter speeds will make the background lighter. The strobe light on your subject's face will remain consistent.

Putting It to Use:

1. Find a dull or ugly background. Place your subject in open shade or in a doorway with the ugly background behind them. Meter the background; if it is more than three stops brighter than the subject, add strobe or a white fill card to your subject's face. If it is less than three stops, add a black card to your subject's face. This will subtract light from your subject's face and make the background relatively lighter.

   This will subtract light from your subject's face and make the background relatively lighter.

   By keeping the ugly background three stops brighter, we can make it virtually disappear into overexposed brightness (darker backgrounds may need to be four stops or more brighter than the subject to wash out to white). If you use strobe, you can bracket with the shutter speed to control the exposure on the background.

   Try different ratios between subject and background. If the background goes four stops brighter, it may begin to flare around the subject. Remember, there's nothing wrong with flare, as long as you control it.

TERMS TO KNOW

diffusion screen—Any translucent white material that is used to create even illumination.

flag—Any opaque object that is used to block light.

continuous light

Continuous light means any light source that stays on when shooting. These are either tungsten "hot lights," HMI (halide metal iodide), or fluorescents. Tungsten lights are like supercharged versions of household lights. They are available in 100 watts all the way up to an amazing 24,000 watts. HMI lights require a ballast for operation and take a short time to warm up. Their advantage is that they get very bright and are daylight balanced. Professional fluorescents stay cool and are daylight- or tungsten-balanced. The main advantage of using continuous light is that you can see the effect of the light. The disadvantage of using them is that they are very hot (in the case of tungsten lights), very expensive (in the case of HMI), or very limited in illumination intensity (in the case of fluorescents).

The main advantage of using continuous light is that you can see the effect of the light.

MOVEMENT

The movie industry obviously uses continuous lighting, because movies show movement that can't be captured in the flash of a strobe. Therefore, it makes sense to use continuous lighting to show movement in still photography as well, although the end product will capture more of a suggestion of movement than the actual movement as our eyes see it.

A continuous light lit the subject from the front, just below the camera. The correct exposure for this light was 1/8 second at f-4. A strobe with a 10-degree grid lit the subject's face only. The power on the strobe was adjusted until it read f-8. The final camera exposure was 1/8 second at f-8. This made the hot light two stops underexposed, but the light on the subject's face is correctly exposed. The camera was shaken slightly during the exposure.

Combining strobe and continuous light can create some interesting effects. When we do this, however, we are in a mixed lighting situation again. Therefore, we will need to look at this situation as if we were combining two shots into one. The ratio between the two light sources is an important consideration, and we will also need to use a slow shutter speed to create the illusion of movement. This can either be movement that you have your subject make during the exposure, or movement you create by moving the camera slightly.

This technique is called dragging the shutter. What this means is that you will set the shutter so that it remains open longer than is needed just to expose for the strobe. Basically, the shutter will open, the flash will fire, then the shutter will remain open, allowing the continuous light to register in the image. During the continuous-light exposure, either the camera or the subject can move to create an impression of movement in the final image. When you do this, any area lit by the continuous light (this can be your subject or the background) will be blurred in the final exposure. Any areas lit by strobe will be frozen in place.

When doing a shot that has both frozen areas and blurred areas, it is best to separate the two light sources as much as possible. Don't let them light the same areas. For example, use the continuous light for the background and the strobe for the subject, or vice-versa. Alternately, consider using the strobe on one side of your subject

This is the ghosting effect photographed with a 4x5-inch camera. A strobe with a 10-degree grid lit the egg. A continuous hot light lit the red background. The camera was shaken gently during the exposure. The exposure was 1/8 second at f-11.

and the continuous light on the other side. You can also create separation between the lights by using an extreme ratio.

Don't forget to turn off the modeling light of the strobe during the exposure. If it were to stay on during the exposure, it would act as another continuous light source and blur the subject. There's nothing wrong with doing this; it just may lead to an unpredictable combination of motion blur and frozen areas (see the hairstylist example on the next page).

You can also create separation between the lights by using an extreme ratio.

Putting It to Use:

1. Take a full-length portrait of a friend. Use a continuous light to light the entire body. Use a strobe to light just the face. The continuous light will be the fill light and

TERMS TO KNOW

continuous light—Any light source that stays on when shooting.

dragging the shutter—Using a shutter speed that is slower than the flash-synch speed to allow the ambient light to impact the exposure.

ghosting—Blurred area around a frozen subject that occurs when the camera or subject moves during an exposure.

HMI light—A continuous light source that is extremely bright and daylight balanced, but very expensive.

professional fluorescent light—A continuous light source that stays cool and is daylight or tungsten balanced. Offers limited lighting intensity.

tungsten light—A continuous light source that is available from 100–24,000 watts, but is also very hot.

the strobe will be the main light. Set the strobe two to three stops brighter than the continuous light. Your friend's face will remain frozen while the rest of the body is blurred (remember to have your friend move, or shake the camera slightly during the exposure).

2. Use a continuous light to light a background. Light your subject with strobe. Do an initial shot of the continuous light only. Your friend should appear as a silhouette in front of the background. Then do a shot with the strobe only. Place the strobe so that it doesn't light the background, just your friend. Then combine the two techniques in one exposure. The result should have your friend frozen while their silhouette blurs. This is what's known as a "ghosting" effect.

A tungsten hot light was pointed at the floor behind the model. A strobe with a 30-degree grid spot and half CTO was positioned high and to the left. The exposure was 1/4 second at f-5.6. The modeling light for the strobe was left on during the exposure. During the 1/4-second exposure, the strobe "froze" parts of the model's hair, while the tungsten modeling light blurred the hairstylist's hands.

CHAPTER TEN

extra-small and extra-large light

So far, we've used various companies' light modifiers to create different qualities of light. These are nice, but we can also create our own modifiers in order to make the light even smaller or even larger.

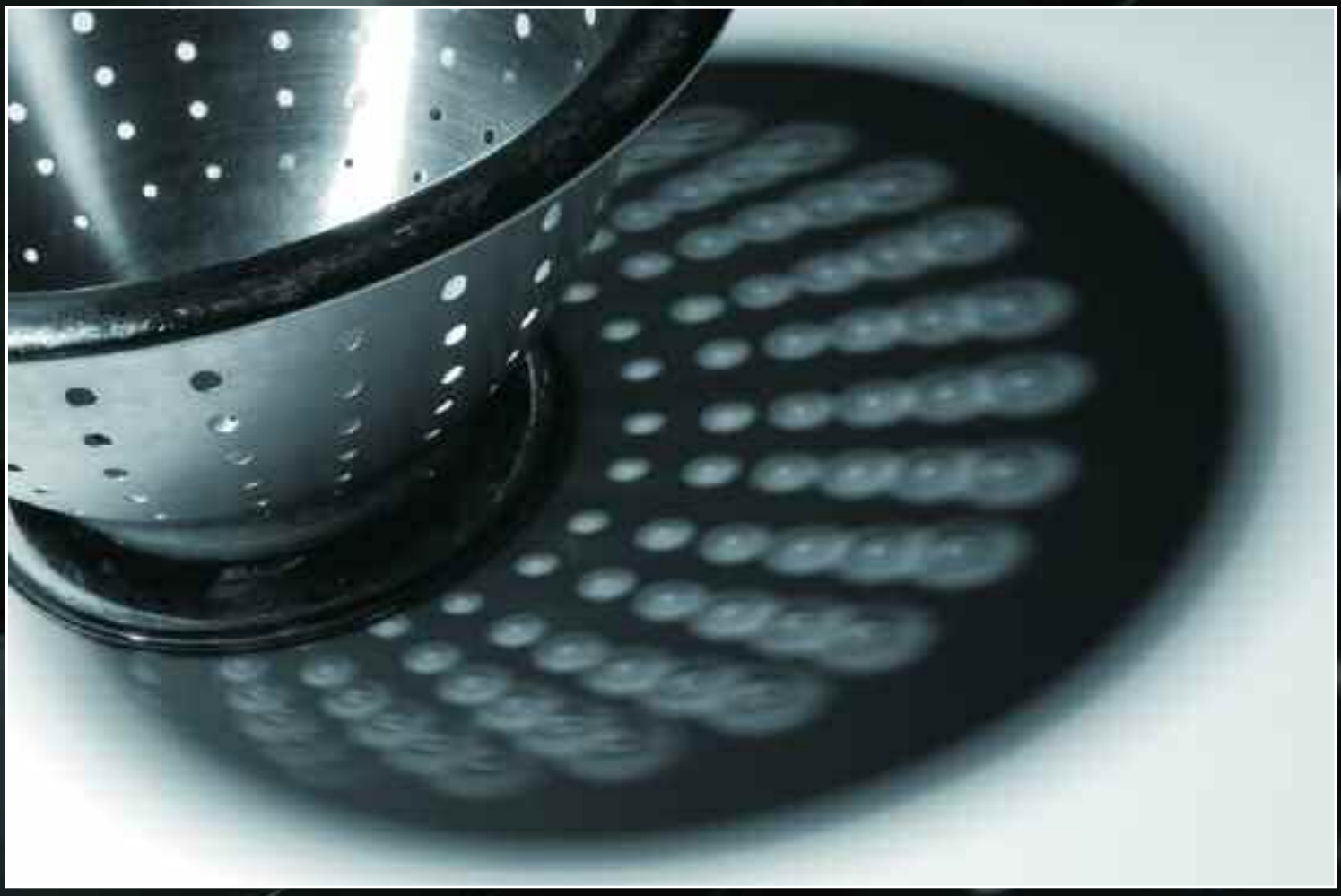
BARE BULB AND MAKING A LARGE SOFTBOX

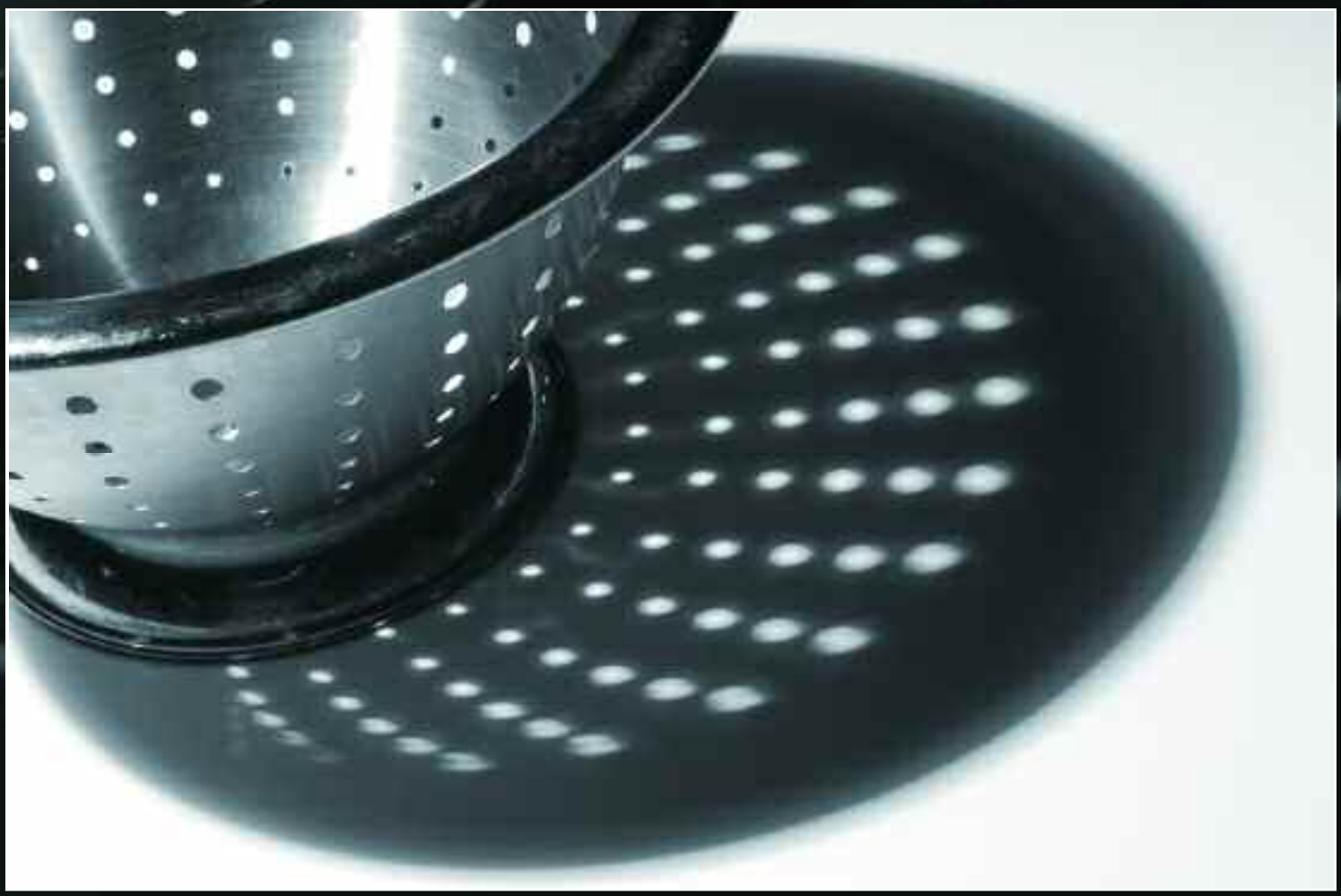
The minimum size possible with strobe light is the strobe itself—the spiral light tube on the strobe head. With any light modifier that we attach to the strobe head, we are making the light source bigger. Even just attaching the open reflector makes it a bigger light source, since the light is bouncing around the shiny silver interior before it is projected outward. If we don't attach anything, we are left with the bare bulb—the smallest light source possible with strobe. Remember the smaller the light source, the harder the light becomes. When you need to create dramatic contrast or crisp, defined shadows, you should use the bare bulb. It's not the most efficient use of the strobe, since a large quantity of light is wasted going out into directions you don't need, but it does create the most well-defined shadows.

On the other hand, to create a very large light source it's possible to make a softbox that is bigger than most manufacturers'

FACING PAGE (TOP)—This shot of the colander was done with an open reflector on a strobe. The light comes directly from the strobe head but also bounces around the interior of the open reflector. This makes for a light source that is about seven inches in diameter with a hot (bright) spot in the middle.

FACING PAGE (BOTTOM)—This shot was done with the bare bulb of the strobe. The side of the strobe that was opposite the set was wrapped with black Cinefoil to prevent excessive light bounce around the studio. The light source is much smaller than the previous shot, resulting in distinct shadows.





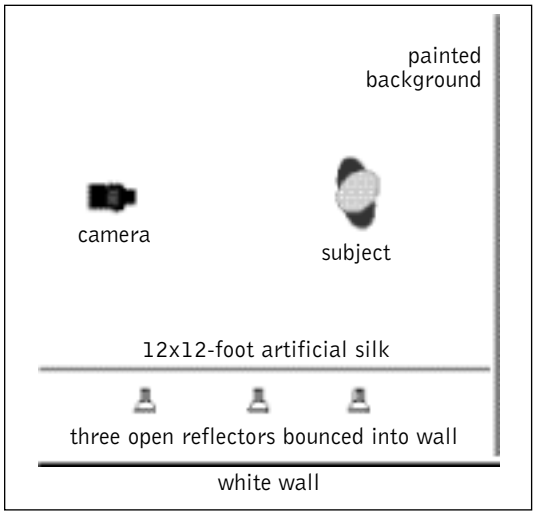
biggest softbox and much less expensive. This is described in the second exercise below.

Putting It to Use:

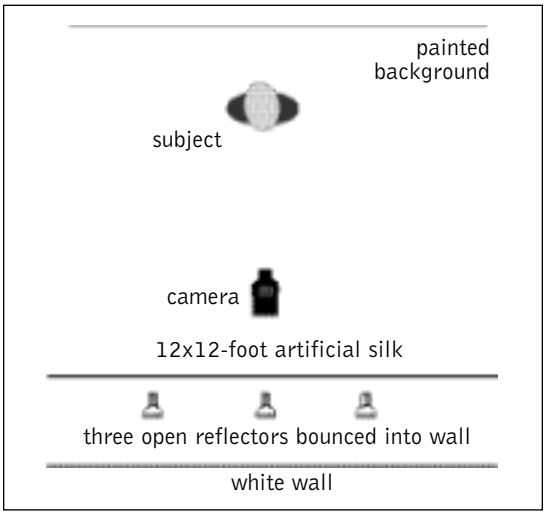
1. Use a friend or still life as a subject. Use the bare bulb only on the strobe as your light source. Do not attach any light modifiers. The bare bulb throws light out into a big area, so to prevent light from bouncing off of nearby walls and onto the subject, you should surround the area behind and to the side of the strobe with black material,

Surround the area behind and to the side of the strobe with black material . . .

The subject was lit with a bare bulb strobe head from the upper left. The side of the strobe head that was nearest the camera was wrapped in black Cinefoil to keep extraneous light from bouncing around the studio and back onto the subject. The shadows created are crisp and well defined.



A 12x12-foot artificial silk was clamped onto a horizontal pole and raised to the ceiling. Three strobe heads with open reflectors were placed behind the silk and, in this case, bounced into a white wall instead of white foamcore. See diagram.



This shot was created with the same setup as was used in the last example, except the model was placed facing the silk. The camera and photographer were set in front of the silk. An assistant took a meter reading at the model's face with the photographer and camera in place, in order to account for any light blocked by the photographer during the exposure. See diagram.

such as Cinefoil or 4x8-foot black foamcore board. This way, the only light hitting your subject will be from the bare bulb.

2. Make two V-shaped light modifiers by pairing 4x8-foot white foamcore sheets and taping one edge together (you'll need four sheets total to make the two modifiers). Open the V shapes wide and position a strobe with an open reflector within each foamcore modifier, pointing the strobe directly into the taped corner where the sheets meet.

   On some stands, set up some diffusion material across the openings of the modifiers (the wide part at the top of the V). You could use a couple of sheer white shower curtains or a professional artificial silk material. When you fire the strobes, the light will bounce into the foamcore boards and then pass through the diffusion material.

   Congratulations! You've just created a giant diffused light source. This will cast a beautiful soft light in a large area. Use it as a side light for a portrait or a group shot. It also works well as a frontal light, with the camera placed so that the light comes from behind the camera and falls onto the subject. If you do this, make sure to meter your subject with your body in the position you will shoot from, since you will probably block some of the light. However, as long as you meter the shot this way, there should be no surprise underexposures.

You could use a couple of sheer white shower curtains or a professional artificial silk material.

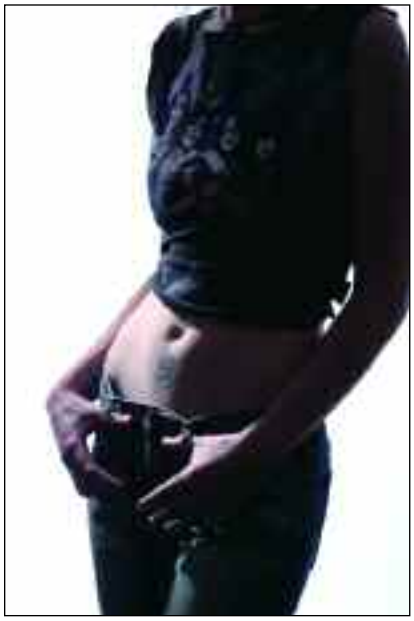
TERMS TO KNOW

artificial silk—A large piece of diffusion material that can be used to create even illumination.

bare bulb—The unmodified strobe head. This is the smallest possible strobe light source.

white, black, and colored backgrounds

You've seen it in a lot of fashion magazines—the pure white background. The model seems to be jumping right off the magazine's paper. This effect takes a while to set up but is simple to master. If done right, the background will appear as clear film on your transparencies. To create this look, you will need a smooth white wall or white seamless paper as a background. The wider the background, the better.

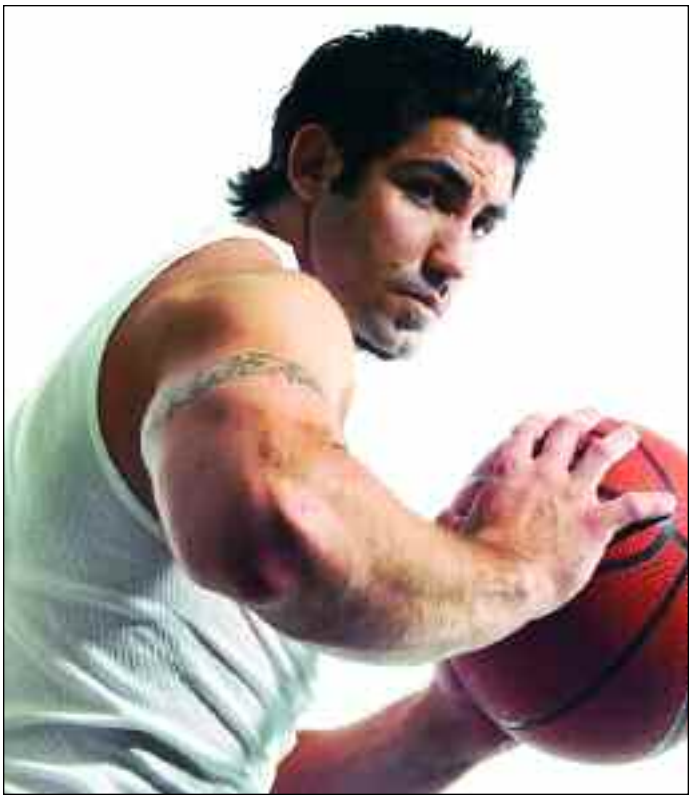


A special 3-degree grid lit the model's belly from the left and slightly behind. The background was lit, again, by four strobes.

WHITE BACKGROUND

To start, it's best to use at least two strobes on the background, although four would be better. Place the strobes at 45-degree angles to the white background with the open reflectors attached. At first, meter each side separately at the middle of the background. Try to get each side to read the same. Then turn both lights on and meter in several areas of the background. The reading should be consistent throughout the background. If it's not, move the lights closer or further away until it is. The goal is to get the background evenly lit. Lastly, make a note of the reading you get on the background.

The biggest problem with shooting in this setup is that light bounces off the background onto the rest of the set. This bounced light will wash out the subject. Therefore, you should place your



Four strobes (two on each side) lit the white background. The model was lit from the right with an open reflector on a strobe.

The only lights used to create this image were two strobes to light the background, which metered f-22. The subject was positioned ten feet in front of the background to minimize light bounce from the background. The reading on the front of the subject was f-4. The final camera exposure was f-16, which made the background go pure white and underexposed the subject by four stops.

subject as far away from the background as you have room for (this is why it's good to have as wide a background as possible). Another way to counteract the problem of bounced light is to set up two black V-shaped foamcore-board modifiers (see page 90) next to your subject. The best way to test to see if your subject is being lit by any unwanted bounced light is to take a shot with only the background strobes. Ideally, your subject should appear as a silhouette against the white background.

Use any light modifier you like for the front strobe lighting the subject. Meter your subject to read one stop less than the background. That is, if the background read f-16, then adjust the front strobe to read f-11. This ratio will make the background go pure white. If the background is set two or more stops brighter than the front light, it will start to flare into the lens and the subject will start

If the background is set two or more stops brighter than the front light, it will start to flare . . .

to look washed out. On the other hand, if the background is set at the same f-stop or darker than the front light, then it will not be white but a shade of gray.

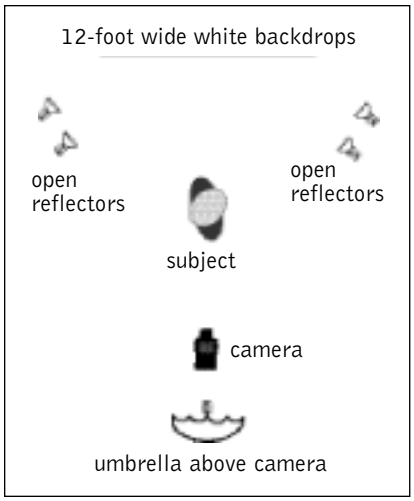
Putting It to Use:

1. Use the setup described above. Be precise with your meter readings. The white background complements bold and graphic subjects. Try to create some contrast with the background by having a friend wear solid-colored clothing. Envision your subject as a drawing on white paper. What colors and shapes would look best?

2. Turn off the front light to photograph your friend as a silhouette against the white background. Alternately, use the front light with a grid spot attached to light only a small area of your friend while the rest of their body remains a silhouette.

3. Turn the front light back on. Angle the background strobes slightly forward toward the front of the set. They will act as a kicker, lighting the side of your friend's face.

Turn off the front light to photograph your friend as a silhouette against the white background.



The model was placed close to the background. An umbrella near the camera acted as a fill light, while the four lights on the white background were angled forward slightly to light the side of her face and dress. See diagram above.

ADDING COLOR

It's an easy step to add color to a white background—simply put colored gels over the strobes that are lighting it. Now meter the colored background to be a half stop less than the light on the subject. In other words, if the light on the subject is metering at f-8, then adjust the background lights to read f-5.6½. This will result in a background with rich, saturated color.

Putting It to Use:

1. Continuing with the setup suggested in the previous section, tape colored gels to the background strobes. Meter the background now to be half a stop less than the front light. This will result in a saturated colored background. Keep the front light from spilling onto the background, causing light contamination.

The background was white seamless paper. Blue gels were taped to the four background lights. A 10-degree grid lit the model from the right. It was carefully placed and angled to light the model only and not the background.

BLACK BACKGROUND

Creating a black background doesn't require as much work as the white background. In fact, any background can be made black, as long as there is a big enough difference in exposure between your subject in the foreground and the background. Try to get the background five stops or more darker than your foreground subject. At this ratio, even a lightly colored background will go black.

Get some at a fabric store and sew some sections together to make it as wide as possible.

For more control, though, using black velvet is the way to go. Get some at a fabric store and sew some sections together to make it as wide as possible. Remember, with backgrounds, the wider the better. When using black velvet as the backdrop, you don't have to create such a large ratio difference between your subject and the background. Since the black velvet reflects hardly any light, it only needs to be about one stop darker than the foreground subject to render as pure black.

Putting It to Use:

1. Walk around your neighborhood with a friend. Find a spot to photograph your friend where the background meters five stops darker than he or she does. Use your in-camera meter or a light meter to judge the ratio. An open doorway works well for this. With your friend at the

This shot was done with natural light. The subject was photographed at a doorway in open shade. Black velvet was placed in the room about four feet behind her and metered about two stops darker than her face, rendering it absolute black.

doorway, the wall in the room at the opposite side of the doorway should easily be five stops darker. This is the inverse square law at work again.

2. Do a studio portrait with strobes. Set up some black velvet for the background. Place the light so that the background is at least one stop darker than the light on your subject. At this ratio, the black velvet will go absolutely black.

3. Try creating a studio look outdoors. Clamp the black velvet on some stands. For the first shot, place your subject in the sun and very close to the velvet so that the exposure is the same on the subject and background. When you take this shot, you will find that the black velvet is not completely black but a dark gray. If you move the black velvet into a shady area, though, and keep your subject in the sun, your shot will have a completely black background.

This is a similar setup as was used in the last example. Here, however, the subject was lit by direct sunlight. A black flag was also used to partially block some of the sunlight hitting the subject. Black velvet was positioned in the shade about three feet behind her.

still-life and product photography

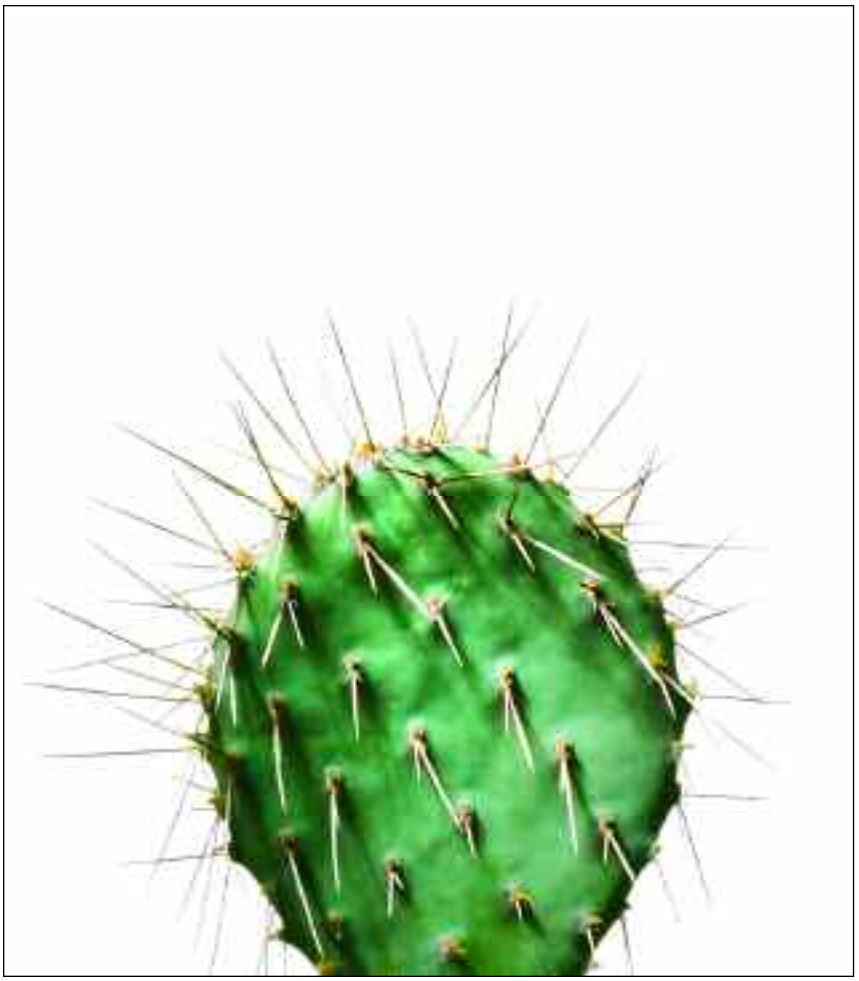
The terms "still-life photography" and "product photography" are nearly synonymous. Still life relates more to conceptualized arrangements of objects, while product usually means a single object photographed in isolation. Don't let the terminology limit you, though. Feel free to develop your own language about photographing objects. Call it "subjects-that-don't-talk-back" photography, if you like.

EMOTION

How can you combine different inanimate objects in a complementary fashion?

A lot of photographers avoid shooting still lifes and products. How can you combine different inanimate objects in a complementary fashion? How do you make a simple object look remarkable? How do you show the details of the product and still create an interesting mood? These are difficult questions. When photographing people, the most important part of the shot is the person themselves—their emotion, expression, gesture, and attitude. Any camera or lighting techniques should serve only to enhance the person in the shot.

What, then, do you do with an object that has no emotion or expression? You have to use camera and lighting techniques to create expression. You may ask, "How do I get emotion out of a pear or a coffee cup?" You won't. They don't have feelings like happiness



A strobe with a 3-degree grid was placed up and to the left of the cactus. It was angled across the surface of the cactus to show texture and contour.

or sadness. However, you *will* be able to create emotion in the viewer of the photograph. A pear photographed on a wooden table and delicately illuminated by soft window light has an entirely different feeling than the same pear photographed from above with a macro focus on the stem and short depth of field. The pear is the same, but our reaction to it is different.

MAKE IT INTERESTING

The first decision to make when photographing a still life or product is whether you will show the object as is or transform it into something more than it is. The best still-life and product photography is able to do both at once. It can give an accurate representation of the object but also make it seem magical. Try to achieve both.

It can give an accurate representation of the object but also make it seem magical.

All objects, no matter how mundane, have something interesting about them. Wherever you are right now, find something to pick up and examine. You will have to do some work now. What is the

most interesting aspect of that object? At my desk, I just picked up my credit card bill. The envelope the bill came in has one of those see-through address windows. When I hold it up to the light, the see-through window casts a nice diffused shaft of light down onto the table. This would be a good starting point for a shot.

The point is, don't look at an object and quickly judge that it can't be photographed in an interesting way. It's good practice to find everyday objects, study them, and discover something unexpected in them. One day the manufacturer of a very ordinary object who needs it photographed for a national advertising campaign may approach you. If you've practiced, you will be ready to make that ordinary object look amazing.

Putting It to Use:

1. Find some magazines with still life or product shots you find interesting. The photographers who made these shots had some decisions to make. They probably asked themselves questions like:

What would be the most interesting angle to shoot the product from?

- What would be the most interesting angle to shoot the product from?
- What's the most interesting feature of this object?
- What background would complement it best?
- What quality of light is best for this object?
- Should certain areas be flagged to create emphasis on other areas?
- What unusual shape or gesture can I give to the object?
- What format camera is best?
- Which lens?
- What props could be added to the shot to serve the overall mood?

Think of more questions that may have been asked, then pick an object for a product shot or a group of objects for a still life. Review the questions above to find a starting point for shooting your photograph. Then read through the techniques below for some additional ideas that may suit your subject.

TEXTURE

The lighting for your still life or product shot is essential. If your object has a lot of texture, it is best to show the texture by using a side light. When light comes from the side across the surface of anything, it picks up the surface details. Texture lighting exists everywhere. It could be sunlight raking across the façade of a brick building, studio strobes lighting the side of a man's beard, or low window light skimming across a wood table. You can use hard or soft light; just make sure it comes from the side of the subject.

A medium softbox was used to light these bike gears. Even though it was a soft light, it was still a texture light since it was placed to the far right side of the gears. By lighting from the side, the depth and thickness of the gears is easily seen. If, instead, they were lit from the front, they would have appeared flatter and less interesting.

An open reflector on a strobe lit the aspen branch from the upper right. The light was placed just above the height of the branch to skim across its surface, showing its texture.

REFLECTIVE SURFACES

If your object has a highly reflective surface, it's best to use a big, soft light like a large softbox. A small, hard light source would reflect as a pinpoint of white light—not attractive. Objects like this act like mirrors, reflecting the entire studio. You will probably see a lot of unwanted things reflecting in the object, including yourself. Bring

ABOVE—Curved shiny objects are difficult to photograph. They reflect everything! This shot was done with natural light only. A diffusion material was set up in front of the bathroom window to soften the direct sunlight coming through the window. It made a soft, broad reflection in the faucet.

RIGHT—The watches were shot on white paper with a softbox directly above them. The chrome surfaces of the watches reflected the softbox, the white paper, and parts of the other watches. Initially, the glass crystal faces of the watches reflected a lot of white as well, making it difficult to see the surfaces of the watches. Small circular black flags (two inches in diameter) were taped to pieces of metal coat hangers. They were positioned just above the watch faces to create a darker reflection so that the faces could be read. It's easy to make your own mini-flags, called "dots," or you can purchase them from a manufacturer. Lastly, small mirrors, about one-inch square, were placed just outside camera view on either side to bounce small areas of light onto the watches.

the softbox in as close as possible to the object so that it blocks out the rest of the studio. There is also a product called a light tent that can be used in this situation. It is made of diffusion material and is cone-shaped with an open bottom and another small opening on the side where the camera is placed. You can place lights outside of the light tent to shine through the diffusion material and create a soft, shadowless light that surrounds the object.

Not all shiny objects need to be surrounded by soft light, though. Shape is better defined when there are areas that reflect white while other areas reflect gray or black. You will have to determine what works best for your subject. Should it reflect white everywhere? On the other hand, would it look better with light and dark reflections? Try moving the softbox to different angles to make different reflection shapes, or add white or dull silver cards to the set

to minimize dark reflections. You can also create a gradated tone by bouncing a strobe into a large white card. The light will fall off as it spreads across the card. Angle the card so that it's reflected in the subject and you will have a subtle gradated tone from white to gray. If you use this technique with another light, make sure you use the same white surface used with the first light. There are often marked differences in color temperature among white cards.

Keep in mind that when you shoot objects like this, it's as if you are photographing the reflections in the object more than the object itself. Look at some photos that show reflective objects (kitchen supply catalogs are great for this—lots of chrome). Notice how shape was defined using white, gray, and black reflections.

This jewelry was photographed with a light tent. Two strobes with umbrellas attached were placed slightly behind the set on either side. Another strobe with an umbrella was placed just below the camera in front. The light tent surrounded the set. The light from the umbrellas was diffused through the light tent to make a very soft, broad light that worked well for the highly reflective jewelry. Jewelry by Fitz and Fitz (Santa Fe, NM).

A large softbox was positioned at the back right side of the set. A white fill card was positioned at the left to bounce light back onto the pieces. The polished turquoise reflected a lot of light, but the reflections helped define the shape of the pieces. In contrast with the watches in the previous example, the reflections here did not diminish the "read" of the products, so they were left in. Jewelry by Peyote Bird Designs (Santa Fe, NM).

GLASS

Glass is another object that needs special attention. It is unusual in that it reflects light and is translucent. It usually looks best when lit from behind with soft light. Light from behind will also help to illuminate any liquid in the glass. Another soft light from the side, usually a softbox or diffused

This shot was done with tungsten-balanced film and two strobes, giving it a bluish tone. A large artificial silk was set behind the martini glass. A 48-inch umbrella was attached to each strobe. The quality of light created by this setup was very soft. The top surface of the liquid reflected the soft light, and the glass bounced a lot of light around its interior, creating a nice contrast from the top to the bottom.

window light, can add a nice reflected shape to the curve of the glass. Try adding white or black cards to different areas around the glass to form different reflected shapes. Additionally, a great way to create contrast from subject to background is to use cards on both sides of the glass. Use black cards with a light background to create black edges against light. Then try using white cards with a dark background to create white edges against dark.

FOOD

Food photography is worthy of a whole book in itself. There are some basic tried-and-true methods that can carry you a long way, though.

Styling and background are especially important in food photography. A blueberry muffin photographed with a knife, butter, and steaming coffee nearby looks appetizing. A blueberry muffin photographed by itself on a gray background, on the other hand, is more of a study in shape and form than something you can sink your teeth into.

Food looks best when it has a warm tone to it, so use a warming gel on the lights or a warming filter on the lens. Positioning the light above and slightly behind the subject is a good place to start. The light will cast shadows forward, giving a nice shape and dimension to the food.

Lighting can also help with the mood of the scene. Along with the warming gels, the use of a cookie (cuculoris) can help throw

The vegetables were lit with a single hot (tungsten) light from the back left. Daylight-balanced film was used, accounting for the warm tone. The vegetables in the background metered 2½ stops brighter than the shadow area of the garlic.

dappled light onto the food. This gives a feeling of morning light coming through a window.

Remember the overexposed sunlight effect we did earlier? You can use the same effect here. Place your light (soft or hard light) above and behind your subject. Angle it so that more light hits the area behind the subject. Use the light meter to try and get this background area two to four stops brighter than the subject. If necessary, bring the light in close to create a greater relative distance to the food.

BACKGROUNDS

Plexiglas. For a versatile background, purchase some Plexiglas. The two best types are the frosted white and the black.

When the white Plexiglas is lit from behind or below and overexposed, it can make the object appear to float. For example, set the frosted white Plexiglas on two sawhorses. Put a strobe beneath the Plexiglas near the floor. Point the strobe up toward the bottom of the Plexiglas and add some white cards around the sides of the sawhorses to help bounce light from the strobe upward. Alternately, you

The scissors were placed on frosted white Plexiglas, which rested on sawhorses. Two strobes with open reflectors lit the Plexiglas from below. A small white card above the scissors bounced a small amount of light onto the top of them. A blue filter was used on the lens of the 4x5-inch camera during exposure.

The setup used to create this shot was exactly like the one used to create the last shot, except a larger white card was used above the wrapped gift to bounce light down onto the larger surface.

can bounce the strobe down onto another white card on the floor. Place your object on top of the Plexiglas. From the topside of the Plexiglas, meter the Plexiglas by pointing the dome of the meter down. If your reading is f-22, for instance, then set your lens to f-16. This will make the Plexiglas go white, and the subject will have a glow of light hitting it from below. A second light can be added above the Plexiglas to light the subject only.

From the topside of the Plexiglas, meter the Plexiglas by pointing the dome of the meter down.

The black Plexiglas is not lit from below like the white. Its value comes in its ability to create beautiful reflections. Place an object on the black Plexiglas and light it. A dark yet distinct reflection of the object is created, emphasizing its form. Simple, boldly shaped objects work best on this background. If there is too much detail in the object, the viewers tend to get confused as they look back and forth between the object and its reflection.

Unusual Backgrounds. Look for some unusual backgrounds. They may stir your creative juices to find some interesting subjects.

Here are some suggestions: gold foil, silver foil, black velvet, sand, wood, grass, exposed (black) photo printing paper, a cookie sheet filled with water or oil, etc.

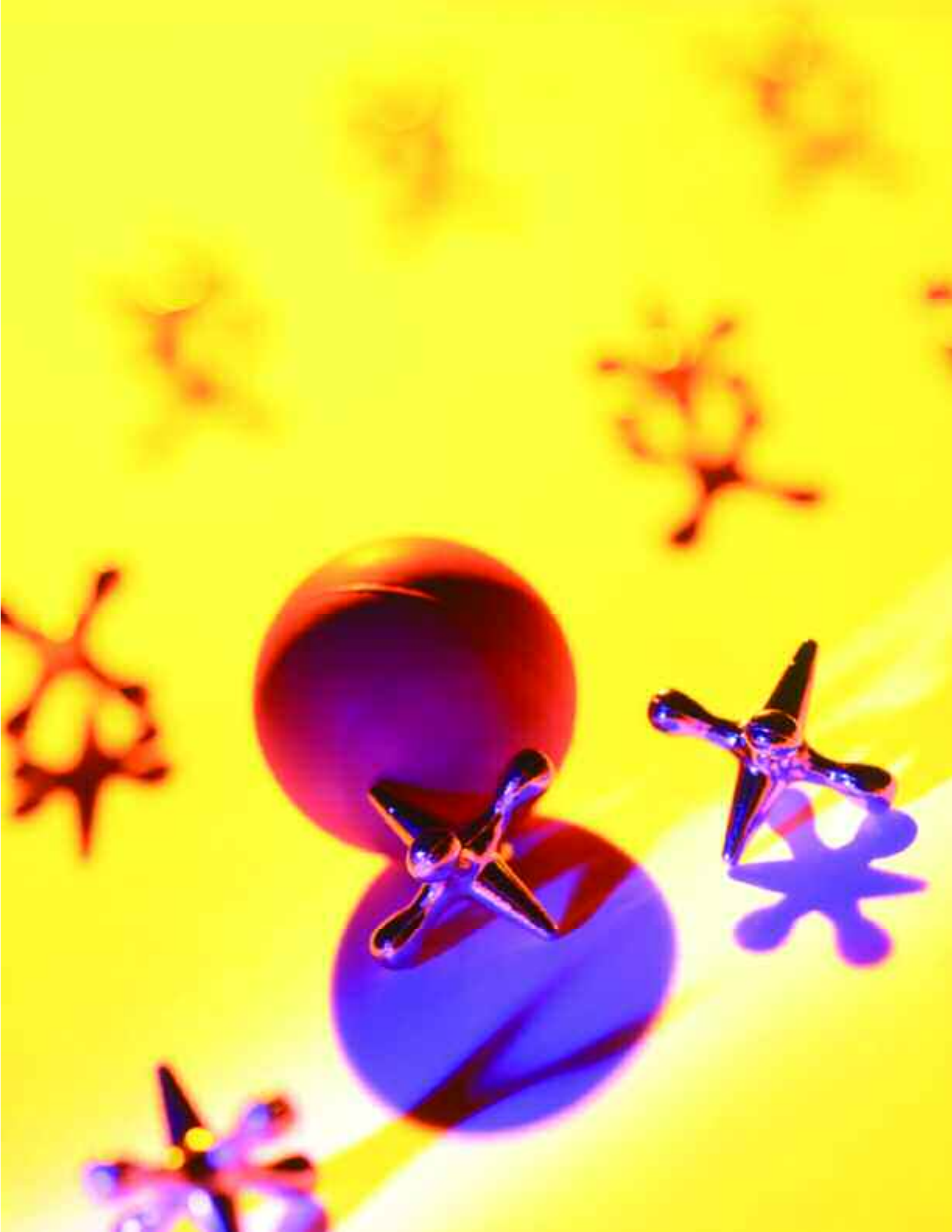
COLORED SHADOWS

A fun alternative for shooting products is to create colored shadows. To do this, place a hard light above and behind the subject, so that well-defined shadows are cast forward. Use a warm-tone gel (orange, yellow, or red) on this light. Then, add another light pointed at the shadow made by the back light. Try to keep this light centered on the shadow only by using a black wrap material such as Cinefoil around the strobe head. Use a cool-tone gel (blue, green, or purple) on this light. Expose this light so that it is two stops less than the back light. In this way, the light will act as a subtle fill light, adding color to the shadow without adding color to the product itself.

LEFT—This doll was photographed on white Plexiglas. What makes the surface unusual is the addition of soapy water. A small softbox was positioned behind the set in the rear, pointed down toward the Plexiglas. Its distorted reflection is visible as the white area surrounding the doll. A small tungsten spotlight lit the front of the doll from the left.

RIGHT—The baseball was set on a thin sheet of black Plexiglas. It was lit with a single bare bulb strobe from above.

FACING PAGE—A strobe with a 40-degree grid and a yellow gel attached lit the jacks from above and to the rear of the set. Another strobe with a 10-degree grid spot, purple gel, and black Cinefoil wrapped to a small opening around the head lit the shadow from above. The "purple" strobe metered two stops less than the "yellow" strobe.



CHAPTER THIRTEEN

interior lighting

Interior lighting is an immense subject that could fill an entire book. The goal of this chapter is to provide you with an overview for dealing with interior spaces, but by no means will it cover all of the possible situations you will come upon. If, after reading this section, you find that you have a clear interest in interior photography and lighting, find a good book on the subject.

IDENTIFYING THE GOOD STUFF

When you enter an interior space, what do you notice? It may be a beautiful wood ceiling, a marble floor, or incredible furniture. Some spaces have all of these things and more. A lot of spaces don't. Your job as a photographer is to show off the good stuff and hide the bad stuff. It's all about directing the viewer's eye where you want. This can be done with composition and lighting.

The goal of this chapter is to provide you with an overview for dealing with interior spaces . . .

If possible, make an advance scouting trip to the location. This will help you to determine the best area to shoot from for the best composition. Try to go at the same time of day that you will be shooting in order to see how the natural light will affect the scene. Bring your light meter and digital camera. Walk around the space with the light meter to see the changes in f-stop. Use the squint test to see which areas will go dark. Your goal is to see all the variations

in light in the space. If important details go dark, then you will need to light them, either with existing room lights, window light, strobe, or hot lights. Establish where you will place your lights.

If any objects need to be moved, or if propping needs to be done, tell the appropriate person at this time.

THE SHOOT

When you arrive the day of the shoot, your first job is to set up the camera and get a good composition. Which details need to be seen? Which should be hidden? Does the space lend itself to a symmetrical composition? What type of lens will you use? A wide-angle lens will most likely be used, but an extremely wide lens could distort objects at the edge of the frame.

When you arrive, your first job is to set up the camera and get a good composition.

Supplementary Light. Initially, do a test shot with the existing room light and window light. This will help you to see what areas will need supplementary lighting from strobe or hot lights.

Color Balance. This may be a mixed-lighting situation as well. If household incandescent lights are the predominant light source, then you will have to use either an 80A filter on your lens or use tungsten-balanced film. The strobes, if used, will need full CTO gels attached to balance them with the incandescent lights. (Take a moment to review how to balance different color temperatures in chapter 6.) The key point is that you need to make all light sources in the scene approximately the same color temperature and then use a filter on the lens to match the light sources to the film. The same idea would apply if fluorescents were predominant, but you would use green gels on the strobes and an FLD filter on the lens.

Creating a Natural Look. In the end, your goal is to make the space look natural. Unfortunately, most non-photographers don't understand the amount of work needed to make a room look natural. Film and digital just don't see as well as our eyes. A key aspect of achieving a natural look is to use supplemental light in a subtle way. People who are familiar with the space are used to seeing it lit by either window light during the day or the existing room lights at night. If you come in with a lot of strobe light and change the way the room looks, the client won't be happy.

Ideally it would be great to use the existing light of the room only. Unfortunately, this is rarely feasible. Therefore, it's important

to do an initial test shot to see how much illumination the room lights are giving to the space. Then, add strobes or hot lights to fill in the dark spaces.

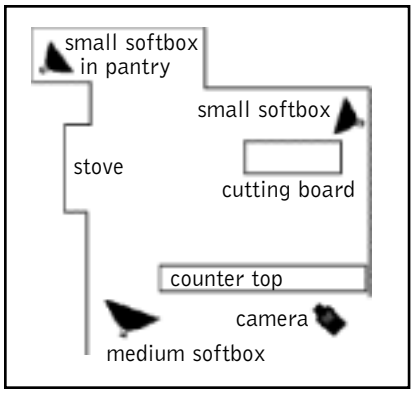
Do an initial test shot to see how much illumination the room lights are giving to the space.

Putting It to Use:

1. Photograph a room with direct sunlight coming through a window spilling onto the wall or floor. Turn off all the room lights. The sun will be the main light, but it will also create a high-contrast lighting situation. There will

Direct sun from the window on the right is doing most of the lighting here. A strobe with an umbrella was placed on the left to fill in the shadows in the fireplace area. Another strobe with a small softbox lit the back of the chair on the left. The floor lamp at the far wall helped to light the chair next to it. Lamps look best when turned on, even in a sunlit scene such as this one. Location: Seret's 1001 Nights (Santa Fe, NM).

Three strobes were used on this shot to complement the natural light coming from the patio. A strobe with an umbrella was placed high and to the right of the camera. This lit the woodwork at lower left, the table and seat at lower right, and the cabinet and wall hanging on the right. Another strobe with a 10-degree grid lit the painting on the wall at the far right. The last strobe was placed in the front room on the far left. An open reflector was attached to this strobe to light the entire room. A slow shutter speed overexposed the outdoor light by a half stop. Location: Seret's 1001 Nights (Santa Fe, NM).



This shot combines daylight, tungsten, and strobe lights. The skylight in the ceiling provided overall soft light. Track lighting lit the cutting-board table and areas around the stove. Three strobes provided supplemental light. A strobe with a small softbox attached was placed in the pantry in the distance. Another strobe with a medium softbox was placed to the left of the camera and angled into the middle of the scene. This angle not only helped to light the shelves at the bottom of the frame but also subtly lit the paintings at far left. Lastly, another strobe with a small softbox attached was placed in the kitchen to the right. The goal with this light was to fill in shadows around the wine bottles and the pottery on top of the cabinet. Daylight-balanced film was used. The differences in color temperatures of the various light sources created a nice contrast among areas of the kitchen. Architect: Klein Design (Santa Fe, NM).

be very bright areas and deep, dark shadows. Use a strobe with an umbrella attached as a fill light near the camera. It's all right to let the sunlit areas overexpose slightly. This will give the shot a more natural appearance. Adjust the power of the strobe so that important areas are correctly exposed. Bracket with both shutter and aperture to vary the ratio between strobe and sunlight.

2. Do another shot of a room in daylight but without direct sunlight pouring in through a window. This time, position the camera so that it sees the room and out a window. Some details outside should be seen, but it's not important to show everything. In fact, it looks best if the outside is about one stop overexposed. Use a fill light again. If the walls and ceiling are white, you can bounce the fill light into a corner of the ceiling or directly into the ceiling above the camera. Bouncing the light this way gives an excellent distribution of illumination. Control the ratio from inside to outside by changing the shutter speed. You may find that you like the look created when both exposures are the same. However, this will also change the amount of light coming into the room from the window.

Some details outside should be seen, but it's not important to show everything.

3. Photograph a room at dusk with tungsten-balanced film or an 80A filter on the lens with daylight-balanced film. Turn on the room lights. Use hot lights or a strobe with a full CTO gel attached for fill. If a window is in your composition, the area outside will turn blue with the tungsten-balanced film you are using. This is completely acceptable and creates a nice color contrast to the room. If you would rather that the outside was rendered neutral, then you can carefully tape large CTO gels to the window itself (just make sure there are no wrinkles in the gels). Dusk is the best time of day to balance the interior exposure with the exterior exposure. This also applies to shooting the exterior of the building. The area inside should be at a close exposure ratio to the outside.

This shot was taken at a gallery at night. The existing overhead track lights did the majority of the lighting. They metered one second at f-16. Tungsten-balanced film was used. After an initial Polaroid, it was determined that the track lights were too high contrast. To lower the contrast of the scene and fill in the shadows, two strobes with umbrellas attached were positioned on either side of the camera. A full CTO gel was attached to each strobe to match the color temperature of the room lights. Their power was adjusted to be two stops less than the ambient room light. This created a subtle fill light. (Location: Anderson Contemporary Art, Santa Fe, NM)

4. If you are stuck in a small room where it's impossible to set up strobes or hot lights, or in a place where strobes are not permitted, then your best choice is to work with the available room light and window light. Once again, dusk would be the best time to shoot in order to balance the interior with the exterior. However, if you're stuck shooting in the middle of the day, then the effect of interior lights will be negligible. If this is the case, do two different exposures. Make one exposure for the interior of the room. The room will look nice but the window, if it's in the shot, will be blown out to white. Then make a second exposure for the window itself—probably three to four stops darker. The window will have detail (and possibly exterior detail), but the room will be underexposed.

If you're stuck shooting in the middle of the day, then the effect of interior lights will be negligible.

You will have to use a tripod for both exposures to keep them in register. Then it's easy to composite the two exposures in Photoshop. This technique works easily with a digital camera since registration is assured. On the other hand, scanning film and then registering the exposures in Photoshop takes a bit more work.

This interior exposure was 1/15 second at f-8. The exterior view has blasted out to white.

This exposure was 1/125 second at f-8. There is now detail outside, but the interior has gone very dark.

Combining the two exposures in Photoshop produces a ratio between the interior and exterior of the building that is similar to what our eyes might see, and it's all done with the available light (and a little help from the software).

CHAPTER FOURTEEN

the next step

Everything you've learned up to this point has taught you how to use light to create predictable results. This is fine, and it is necessary for commercial work. Nevertheless, to really challenge yourself as an artist, you have to attempt what you've never attempted before. This will lead to more creative lighting and photography in general. Moreover, in both the commercial and fine-art fields, what gets rewarded the most is creativity, and not just technical expertise.

THE RIGHT LIGHT

When you approach any new photography job or project, you are faced with choices about what lighting you are going to use. Don't worry—it's not your choice to make. Neither you, your strobes, nor your light meter determine the lighting; your *subject* determines it.

When you approach any new photography job or project, you are faced with choices . . .

At the beginning of this book, you were asked to notice when you saw something that you thought had "good" light on it. The hope is that you have kept up this practice and will continue to keep it up for the rest of your photography career. At some point you will see, if you haven't already, that photography is less about control and more about discovery. If you insist on control, your photos will all start to look the same. On the other hand, if you let the subject

"tell" you what the best light for them would be, then you will have a unique discovery every time. It's as if you are having a conversation with your subject and light is the language.

Without getting too mysterious and mystical, this process is as simple as setting up a light and seeing how it works with your subject. Trying different qualities of light in different positions will eventually lead to the subject screaming out, "This is the light for me!" As you get more skilled with lighting, you will know, before you even set up a light, that a particular quality of light in a particular position will work best for that subject. However, that is no reason to do that setup only. Use the light like it was your paint and move it around. See how it responds with your canvas—your subject.

This process is as simple as setting up a light and seeing how it works with your subject.

There are no rules in lighting. It's art! Use your own personal aesthetic. What you may think is nice light may seem awful to the

This photo was made with a 4x5-inch view camera. Selective focus was made on only the midsection of the bodybuilder. A tight crop also helped to keep attention on the body. If more of his face were shown, then the shot would have been more about him personally than about the human body. When you are photographing people, look for parts of their body other than their face that may tell a story.

ABOVE—The candle was photographed with open shade window light. Using a digital camera with the white balance set to incandescent made the window light turn blue. The candle was purposely shot out of focus because this photo was less about the details of the candle and more about a feeling of softness.

LEFT—This photo was a two-minute exposure lit only with a flashlight. In a dark room, the lens was opened and the flashlight was moved across the surface of the book and the background in a painting motion (that's why this technique is called light painting). The results are a bit unpredictable with this method, but that's half the fun.

next person. It's subjective. Of course, if that other person is a client, then you had better listen to what they have to say.

At this point you may ask, "How do I know when I have the right light?" Only you can answer that question. If you like it, then it's the right light. If you are completely lost about how to light a certain subject, you should ask yourself what would be the absolute worst lighting to use on this subject. This will help you to narrow down your choices to something more appropriate.

The following will provide some inspiration for your future lighting endeavors.

MYSTERY

Create a photo that has mystery—one that doesn't show everything explicitly. Remember that a photo that is evenly exposed everywhere is often boring. Use over- or underexposure to hide some of the elements of your shot. Try using underexposure in an area where we would normally expect to have good exposure, like someone's eyes. Try creating mystery in other ways, too. Use composition to hide some elements. Experiment with a very shallow depth of field, or try throwing everything slightly out of focus. Use a slow shutter speed to give a soft edge to the subject or create the illusion of movement. Also, try a very long exposure, using a tripod, to show the accumu-

lation of light—two minutes or more. This will show the subject in a light not seen by the human eye.

FIND THE BEST LIGHT FOR AN INDIVIDUAL

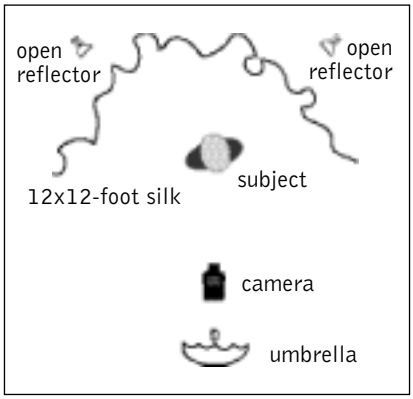
Have a friend sit for a portrait. Move a strobe light around them and notice the effects of the modeling light on their face. Pay particular attention to when the light makes them look bad. Some lucky people never look bad no matter what light you use on them. They're called professional models. However, for the rest of us, when the light looks bad, it's a clue as to what quality of light should be used and where. For example, if the light looks bad when it is overhead and hard, then you should probably use the opposite—a soft light near the camera.

MOTION

Before a shoot, think of how your lighting will relate to your subject. Are you photographing a single individual? A group? Any children or animals? Will there be any movement?

A 12-foot wide white seamless background was set up to give the dog and cat room to run around. A strobe with an umbrella was placed on a boom stand at a height of seven feet and served as the main light. This light was angled straight down at the white background. At a height of seven feet, it spread out in a wide area. Another strobe with an umbrella was placed just to the right of the camera to act as a fill. This strobe was adjusted to read 1½ stops less than the overhead umbrella. This lighting setup covered a large area. The light meter reading was consistent from front to back and side to side, so the animals were correctly exposed no matter where they were on the background.

A white seamless paper background was lit with four strobes. The dancer was lit with an umbrella on a strobe that was placed just above the camera at a height of six feet. The dancer was eleven feet from the camera and the umbrella. At this distance, the light from the umbrella spread out in a wide area. This gave the dancer room to move from side to side and still be correctly exposed.

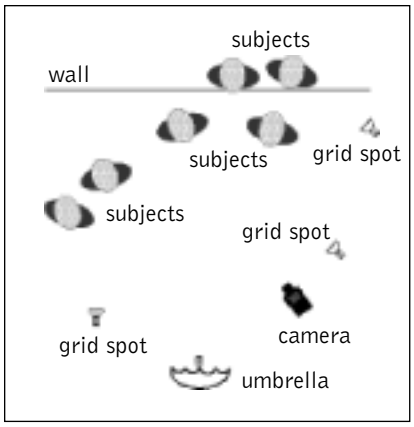


This shot is similar to the last one except that the background is now a 12x12-foot artificial silk. The silk was hung with folds, and two strobes with open reflectors were placed behind it. As the light was cast forward, it created darker lines in the silk where it had been folded. An umbrella lit the front of the model. The bluish tone is a result of shooting a digital camera in the incandescent white-balance mode.

GROUPS

Photographing a single individual affords you the most freedom in lighting. You don't have to light a huge area and, if the person is stationary, you can use a variety of light qualities.

Groups are different. If you look through magazines, you will notice that most group shots are lit with a broad light source that covers a big area. This makes sense. A consistent f-stop reading from side-to-side and front-to-back is essential. Remember: move the lights farther away from the set to minimize light falloff



This is a shot of students in my lighting class at The Santa Fe Workshops. A separate strobe with a 40-degree grid attached lit each group of two people for a total of three lights. The grid spots were adjusted to read all the same f-stop on each person's face. After an initial Polaroid, it was determined that another strobe with an umbrella attached was needed to act as a fill light to lighten areas in the grass. The grid spots metered 1½ stops brighter than the umbrella fill light. The final exposure was a half second at f-8½.

across the group. This will give the group room to interact without anyone getting underexposed. This type of lighting also works well for children and animals, who tend to run around a lot. It would also work for dancers since they wouldn't have to worry about staying in the light. They could move anywhere on the set and still be well lit.

There is another way to do group shots that look a bit more dramatic but also limits the movement and interaction of the people. You can light subgroups with individual grid spots, preferably using a wide grid (30 or 40 degrees). For example, in a group of seven people, you could use one grid spot to light a subgroup of three people that are standing together. Then two other grid spots could light two subgroups of two people each. This looks nice when the lights are coming from different angles onto each subgroup. Individual lights may spill onto other subgroups, though. That's not a problem, but you do need to be aware of the shadows that it creates.

This looks nice when the lights are coming from different angles onto each subgroup.

MOOD

Do a shot where your technique complements the mood. For practice, use a friend as a model to create different feelings and moods through lighting and camera techniques. Imagine doing a series of

portraits of your grandfather. Shooting from a low angle looking up at your grandfather could create a dignified and important mood. You could have him look up into a light placed above and to the side, then supplement this with a strong back light. This will help him to "hold his head high" and feel as if he walks in a special light.

On the other hand, you could illustrate the loneliness and isolation of old age by having him sit in a dark room lit by a single small window (or use a small softbox to create this effect). Use a wide-angle lens to make him look small compared to the room. Have him sit very near the window or softbox so that the light isolates him as it falls off into the darkened room.

You could also do a texture shot of the character lines on your grandfather's face. A side light will show texture best.

If you want to photograph your grandfather with his retired friends as they relax, then a big area with lots of even light would be the best choice. This will give them room to interact and move, and the exposure will stay consistent. Open shade would work well—possibly on the porch. If you don't have any natural light to work with, then you could set up two strobes with umbrellas and CTO gels attached. Put them close to each other and a good distance away from your subjects. This will make a believable early evening light that will cover a big area.

A single strobe with an open reflector was placed about three feet above the model's head. This created a strong texture light with a lot of contrast.

These are all possibilities that would work for one particular subject. Just by changing the lighting, we can create an entirely different mood. Try your own variations with a patient model.

the digital age

There is no denying the future of photography: the digital camera is here to stay. There are many advantages to going digital. You are able to instantly review and edit your shots, so Polaroid is no longer necessary for reviewing lighting setups. The white balance feature is also a definite plus. Digital also has a wider exposure latitude than film—and it has better color fidelity in all tonal ranges than film, which has a hard time keeping colors neutral in shadow areas. This means you will not have to carry a lot of color correcting filters. Scanning film results in the loss of image information, but digital lets you transfer your images straight to your computer. The storage and archiving of your images also require less space with digital. Image manipulation is better than anything you could have done in the darkroom, and the environment benefits, too, as digital eliminates the chemicals and much of the packaging involved in film production.

Image manipulation is better than anything you could have done in the darkroom . . .

A DIFFERENT WAY OF SHOOTING

These advantages will lead to a different way of shooting, too. Since the cost of film is no longer an issue, you can shoot more spontaneously. This is no reason to stop thinking about what you're doing, though. As you get better as a photographer, you'll first notice the

mistakes in your finished photos. Then, you should start to see the mistakes while you're shooting. Then, at some point, you should start to notice problems even before you take the shot—and, therefore, know when *not* to shoot.

With digital cameras, it's easy to fall into the trap of just shooting and shooting, without getting any good shots. If before, with film, you were getting three good shots from a roll of 36 and now you're getting three good shots after shooting a hundred digital frames, then you are not improving as a photographer.

It's easy to fall into the trap of just shooting and shooting, without getting any good shots.

Don't rush! Examine all of your shots to see where you can improve. Just because you can shoot more now (without worrying about film costs) doesn't mean that you can rush through your work. After all, if it took fifteen minutes to edit a film roll of 36 frames, it will take twice as long to edit a digital shoot of 72 frames. Remember, speed and quantity do not equal better photography.

REVIEWING YOUR LIGHTING

The digital camera is a great tool for reviewing your lighting setups. However, unless you understand lighting and metering, the digital camera will just make you frustrated. It will instantly show you how much you don't know. You can move lights around all day long, check the awful results on your monitor, move the lights again, and still not get a good shot. Without a solid grasp of lighting fundamentals, you're just shooting by luck, hoping that what you see with your eyes is what shows up on the monitor.

KNOWING YOU GOT IT

Speaking of the monitor, there is no better way to get a good night's sleep than knowing you "got the shot" because you saw it on the monitor. You don't have to worry that the lab will ruin your film or that maybe you should have shot one more roll—just in case.

However, the monitor can slow you down too. Avoid reviewing every shot on the monitor—especially when photographing people. This interrupts the flow of a shoot and makes your subject feel disconnected from the process. To them, it will seem like you are more interested in the monitor than them, and you might miss a great expression because you were looking at the monitor. Check the monitor only occasionally for exposure and composition.

WHITE BALANCE

The white-balance adjustment on digital cameras is a big time-saver. Rather than attaching a filter to correct for a scene that is not 5500K, you can simply change the setting on the camera. This is great when you're shooting in a scene with a consistent color temperature. What about when you're in a mixed lighting situation?

Let's say you're shooting in a big convention center-lit by fluorescent lights. The client wants flashed "grip and grin" shots of the attendees, and she wants to see the activity of the hall in the background. What do you set the white balance at? You could set it to the flash mode and get nice color on the subjects but end up with a greenish background. A better choice would be to use a green gel taped to the flash and set the white balance to fluorescent mode. This way, the subjects and background will be rendered neutral. Yes, you can even tape the gel to your camera's built-in flash. Most cameras will compensate for the loss of flash output from the attached gel when shooting in program mode. If not, then pump up the flash output with the camera's flash exposure compensation function.

The point is, you need to understand color temperature and mixed lighting to get great shots—not just which knob adjusts the white balance.

EXPOSURE

The increased latitude of digital capture will lead to a different understanding of lighting ratios. With film, a difference of five stops between the highlight and the shadow would have produced a very dark shadow. The same ratio with digital would show some detail in the shadow. This produces images that more closely resemble the tonal range that our eyes see. However, if you want to create absolute white or black in an image, you will have to create greater ratio differences.

This produces images that more closely resemble the tonal range that our eyes see.

THE FINAL WORD

As with all new technology, it can be easy to get swept up in the hype and let the gear dictate your photographic style. Digital photography is definitely exciting, but it won't instantly make you a better photographer. Keep your eyes on the light and off of the latest gear catalogs. The world is your studio. Have fun!

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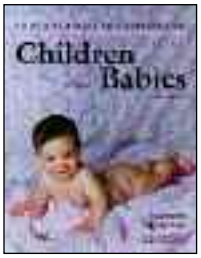

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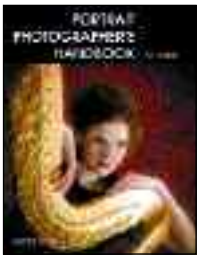

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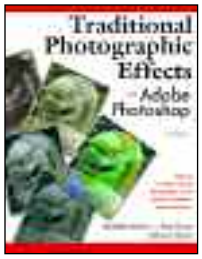

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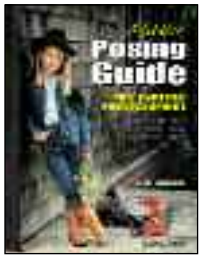

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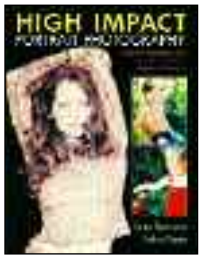

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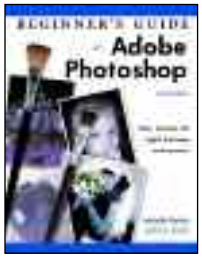

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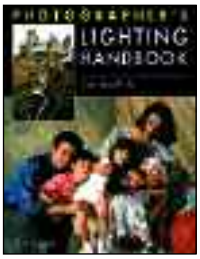

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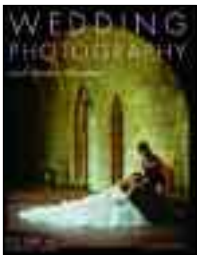

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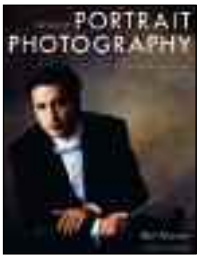

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